THE TREATMENT OF PSYCHOPATHIC SEXUAL OFFENDERS: EXPLORING THE INFLUENCE OF RISK, CHANGE, SUBTYPE, AND ADAPTATION ON RECIDIVISM

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ABSTRACT

Although their numbers are in the minority in the general offender population, psychopathic offenders are responsible for a significant proportion of the most serious offenses committed (Hare, 1993, 2003). A particularly serious concern is that they are a notoriously challenging population to work with clinically and effectively treat (Polaschek, 2014; Salekin, 2002). Recent findings suggest, however, that psychopathic offenders are able to demonstrate treatment changes that translate into reduced recidivism (Olver & Wong, 2009). A greater understanding of the etiology and treatment responses of psychopathic offenders is needed (Salekin, 2002). Consequently, the present archival dissertation program of research aimed to explore the etiological and treatment response variables of psychopathic and nonpsychopathic sexual offenders in a sample of 302 federal inmates. The influence of psychopathy, risk, and treatment change as it pertained to rates of long-term recidivism was explored. Further, to add to the growing body of literature suggesting that psychopathy may be best conceptualized as different subtypes, cluster analysis was utilized to examine the potential of subtypes of psychopathic offenders who respond differently to treatment. Finally, it has been proposed that psychopathic traits may be adaptive and thus, treatment resistant (Harris & Rice, 2006). Therefore, the relationship between treatment response and evolutionarily relevant variables was explored.

Phase one results were consistent with past findings (Olver & Wong, 2009; Olver, Stockdale, & Wormith, 2011) where psychopathic offenders demonstrated higher rates of treatment drop out, but the majority did complete treatment in the current sample. Furthermore, although psychopathic offenders amassed fewer risk relevant treatment gains than their nonpsychopathic counterparts on the whole, there was a group of psychopathic individuals whose therapeutic gains were high and resulted in similar recidivism rates to the nonpsychopathic offenders. Finally, after controlling for comprehensive baseline risk level and treatment change, the PCL-R no longer significantly predicted violent or sexual recidivism. Moreover, treatment change was associated with reduced recidivism, regardless of risk level or psychopathy. This provided support for Wong and colleagues (2012) two component model for the treatment of psychopathy, wherein if service providers can manage and respond to the specific responsivity issues with psychopathic individuals and increase their engagement in treatment, then risk relevant changes that result in lower recidivism are possible.

In phase two, two subtypes of psychopathic offenders were found using PCL-R facet scores that were consistent with the primary and secondary distinction. The primary subtype demonstrated a high degree of the classic psychopathic personality traits, whereas the secondary type had more behavioral and lifestyle traits and to a lesser degree, the callous personality. In terms of external variables, the secondary group had slightly higher risk levels, treatment change, and rates of violent reoffending, but the differences failed to reach statistical significance. Finally, in phase three, there was evidence for psychopathy's relationship with proxies for adaptation, but the evidence for adaptation had little bearing on treatment response. Furthermore, the adaptive markers were largely accounted for by the general antisociality of psychopathy, rather than the psychopathic personality itself. The results were then integrated and implications for the future treatment of psychopathic offenders were discussed.

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1. Literature Review

1.1 Introduction to Psychopathy

Modern conceptualizations of psychopathy are largely based in the seminal work of Cleckley (1941) and his clinical description of individuals who displayed superficial charm, insincerity, deceitfulness, lack of shame or remorse, incapacity of love or anxiety, superior intelligence, absence of psychosis, and emotional detachment. It was later proposed that decisions made by psychopathic individuals in social interactions are determined exclusively by cost-benefit analyses, impervious to the influence of emotion (Mealey, 1995b). They will exist "[w]ithout love to "commit" them to cooperation, anxiety to prevent "defection", or guilt to inspire repentance" (p. 536; Mealey, 1995b). Evidence has supported the theory that genetic factors and gene-environment interactions are likely crucial in the development of psychopathy (Beaver, Barnes, May, & Schwartz, 2011; Mealey, 1995b). Reviews of the extant literature have concluded that psychopathic traits, both the callous and unemotional personality style and the behavioral correlates, are evident in childhood and adolescence and remain stable into adulthood (Shaw & Porter, 2012). Cleckley's (1941) conceptualization largely focused on what is commonly viewed as the psychopathic personality, without the focus on criminality that is often incorporated into today's view of psychopathy. The characteristics that define psychopathy, however, including impulsivity, pathological lying, manipulation, callousness and criminal versatility, are intuitively linked with breaking the law (Hemphill & Hare, 2004).

In terms of the offender population, psychopathic offenders have been found to be more impulsive, aggressive, and more violent than nonpsychopathic offenders (Serin, 1991; Williamson, Hare, & Wong, 1987). Indeed, psychopathic offenders appear in court at younger ages and tend to have more extensive and versatile criminal histories than offenders who display few psychopathic traits (Brown & Forth, 1997; Olver & Wong, 2006; Williamson et al., 1987). Simourd and Hoge (2000) examined a sample of 321 male inmates, of which 92% were repeat offenders. They found that compared to nonpsychopathic offenders, psychopathic offenders had a significantly higher number of previous convictions, total number of convictions, number of different convictions, number of incarcerations, previous violent convictions, and previous

noncompliance convictions. Thus, even within a group of recidivistic offenders psychopathic offenders displayed a more extensive and varied criminal history.

The most widely accepted tool for assessing psychopathy, particularly within forensic settings, is Hare's Psychopathy Checklist- Revised (PCL-R; Hare, 1991, 2003). The PCL-R is a dimensional clinician rated measure that encompasses the main theoretical personality and behavioral traits of psychopathy for both clinical and research purposes. The PCL-R can be reliably rated via interviews and/or solely based on file reviews for research (Grann, Långström, Tengström, & Stålenheim, 1998; Hare, 1991; 2003; Hare et al., 1990; Wong, 1988), however the validity of the file-based ratings may be compromised based on the information available in the file itself (Serin,1993). The PCL-R has demonstrated its reliability and validity in measuring psychopathic traits in offender samples, both prison and psychiatric (Hare et al., 1990). The PCL-R items have been statistically grouped into two factors (Hare, 1991; Hare et al., 1990) and more recently, four-facets (Hare, 2003). Factor 1 of the PCL-R encompasses interpersonal and affective traits that are at the core of the psychopathic personality style, including glibness, conning, lack of remorse, and callousness. Factor 2 of the PCL-R consists of items reflecting the antisocial lifestyle or behavioral correlates including impulsivity, irresponsibility, juvenile delinquency, and criminal versatility. PCL-R scores can be used to label an individual a psychopath, or because of their dimensionality, they can describe the characteristics of the individual in terms of factor scores, percentile rank, or standard scores, in terms of their similarity to archetypal psychopathy (Hare et al., 1990; Hare, 2003; Hemphill & Hare, 2004). The PCL-R is used for both clinical and research purposes (Hare, 1991, 2003).

Based on their index and offense histories, different offender types have been found to be more likely to score higher on the PCL-R than others. For instance, among sexual offenders, rapist and mixed offenders (i.e., with both adult and child victims) tend to score higher on psychopathy than child molesters (Olver & Wong, 2006; Porter, et al., 2000; Seto & Barbaree, 1999). Among generally violent offenders, one study found that those who display acts of goal-directed instrumental aggression can be distinguished from solely reactive offenders in terms of the presence of psychopathic traits (Cornell et al., 1996). A recent meta-analysis further found that higher instrumental and reactive aggression were equally related to higher psychopathy (Blais, Solodukhin, & Forth, 2014). More specifically, the authors found that the impulsive and irresponsible lifestyle traits of psychopathy linked to both types of violence, whereas the traits of

grandiosity and manipulation were more strongly related to instrumental aggression and Factor 2 traits more strongly to reactive. Thus, in terms of both sexual and violent offending, psychopathic offenders tend to display serious and aggressively predatory types of offenses and emotionally reactive violence and they do so at higher rates than nonpsychopathic offenders.

In addition to the high rates of aggressive and violent behaviors that psychopathic offenders engage in, they also recidivate at high rates once released from custody. Serin (1996) found that psychopathic offenders reoffended considerably faster than nonpsychopathic offenders and they did so through both general and violent offenses. Interestingly, PCL-R scores were the only significant predictor of violent recidivism in that same sample (Serin, 1996). The PCL-R has demonstrated utility in the prediction of violent and nonviolent nonsexual recidivism in sexual offenders, as well (Olver & Wong, 2006). Meta-analyses exploring the validity of the PCL-R factor scores in predicting recidivism found scores on Factor 2 to be better predictors of recidivism than Factor 1 scores (Leistico, Salekin, DeCoster, & Rogers, 2008; Yang, Wong & Coid, 2010). Furthermore, deviant sexual offenders who additionally displayed many psychopathic traits were at a particularly high risk to reoffend sexually (Harris et al., 2003; Hawes, Boccaccini, & Murrie, 2013; Olver & Wong, 2006; Rice & Harris, 1997). Consequently, although the PCL-R was designed as a diagnostic tool, it has shown to be related to risk in contexts where psychopathy is theoretically relevant to risk of recidivism (Hemphill & Hare, 2004). Indeed, in a meta-analysis of persistent sexual offenders, the factors most strongly associated with sexual recidivism were sexual deviancy and antisocial orientation (Hanson & Morton- Bourgon, 2005). Moreover, the strongest predictor of violent nonsexual, violent (including sexual), and any recidivism was antisocial orientation, which included both PCL-R total and PCL-R Factor 2 scores (Hanson & Morton-Bourgon, 2005). Hawes and colleagues' (2013) meta-analysis also found that the PCL-R total scores predicted sexual recidivism with low/moderate effect size of d=.40, with Factor 2 being a stronger predictor than Factor 1.

Given the ability of the PCL-R to identify those offenders who are at a higher risk for violence, Simourd and Hoge (2000) suggested that the PCL-R might be more accurately classified as a tool that distinguishes high-risk offenders, as opposed to a personality assessment tool. Hemphill and Hare (2004) however, insisted that although the PCL-R does indeed demonstrate predictive validity in terms of assessing risk in a number of contexts, its utility extends beyond risk assessment. The PCL-R additionally provides an assessment of interpersonal

and affective personality traits, as well as captures historical information about the offender (Wormith, Olver, Stevenson, & Girard, 2007).

1.2 The Risk-Need-Responsivity Principles: Applications to Sexual Offenders.

When assessing an offender's risk to reoffend, and determining the relevant intensity and issues to focus on in treatment, the Risk-Need-Responsivity (RNR; Andrews & Bonta, 2010) model provides guidance to decision makers and service providers. The risk principle states that risk to recidivate can be predicted and the level and intensity of treatment provided to an offender should match his or her risk level. Those at the highest risk to reoffend should receive the most rigorous intervention in order to effectively reduce their reoffending. Next, criminogenic needs are dynamic, or changeable risk factors that are linked to propensity for criminal behavior such as having a history of antisocial behavior, antisocial personality (including psychopathic traits), antisocial cognitions, and associating with antisocial others. Thus, the need principle posits that to reduce recidivism, criminogenic needs must be targeted in treatment. Finally, the responsivity principle maintains that treatment should be tailored to the specific offender. Moreover, general responsivity speaks to the need to employ cognitive behavioral and social learning techniques that are strongly linked to behavioral change. The specific responsivity principle refers to tailoring treatment to the to the specific setting and characteristics of the individual offender, such as motivation, preferences, age, intelligence, and personality factors (Andrews & Bonta, 2010).

In order to adhere to the RNR model of assessment and rehabilitation, practitioners must determine the recidivism risk category for which the offender falls. Over the past 30 years, the assessment of risk for offenders has evolved through four generations of offender assessment (Andrews & Bonta, 2010; Andrews, Bonta, & Wormith, 2006). First generation assessments involve unstructured interviews wherein clinicians arrive at risk ratings based solely on unstructured clinical judgment (Andrews & Bonta, 2010). Second generation risk assessment measures are atheoretical, evidence-based actuarial tools that consist of mainly static, historical items and have shown to be superior to clinical judgment in terms of accurately predicting recidivism (Andrews & Bonta, 2010; Andrews et al., 2006). Static risk factors are generally unchangeable and include such variables as criminal history and offenders demographics (Andrews & Bonta 2010). Third generation assessment measures are theoretically and empirically informed tools that address the "risk" principle of RNR through informing

practitioners of the appropriate amount of resources to allocate to the offenders, as well as the "needs" principle, in terms of evaluating criminogenic needs (Andrews & Bonta, 2010; Andrews et al., 2006). Finally, fourth generation assessments include case management into their measures, allowing for consideration of responsivity issues and structure supervision from intake to discharge (Andrews & Bonta, 2010; Andrews, et al., 2006; Campbell, French, & Gendreau, 2009). The later generations of risk assessment tools take into consideration dynamic, or changeable, risk factors that can be influenced by treatment, such as antisocial cognitions and lifestyle (Andrews & Bonta, 2010).

In a meta-analysis of 118 studies of the accuracy of different generations of sexual offender risk assessment measures, Hanson and Morton-Bourgon (2009) found that, indeed first generation unstructured clinical judgment performed significantly worse at predicting recidivism than did actuarial measures. Furthermore, the Violence Risk Appraisal Guide (VRAG; Quinsey, Harris, Rice, & Cormier, 1998; 2006) and the Sex Offender Risk Appraisal Guide (SORAG; Quinsey et al., 1998; 2006) demonstrated superior performance compared to other tools for predicting violent (including sexual) and general recidivism (Hanson & Morton-Bourgon, 2009). A related issue to take into consideration when assessing sexual offenders is that the majority of recidivating sexual offenders do not reoffend sexually, rather, they are more likely to be apprehended for a nonsexual offense (Hanson & Morton-Bourgon, 2005). Thus, it is important to also assess a sexual offender's risk for violent and general recidivism prior to release from custody. The following section provides a brief overview of sexual offender risk instruments vis-à-vis the RNR and generational models of risk assessment.

1.2.1 Examples of second generation sexual offender risk assessment measures

Second generation measures have the most relevance for the risk prong of the RNR framework in that they can accurately classify and forecast the sexual violence risk of the offenders on which they are rated. Two sets of examples include: i) the family of STATIC risk measures including the Static-99 (Hanson & Thornton, 1999), and its revision, the Static-99R (Helmus, Thornton, Hanson, & Babchishin, 2012), Static-2002 (Hanson & Thornton, 2003) and its revision, the Static-2002R (Helmus et al. 2012); and ii) the family of Violence Risk Appraisal Guide (VRAG; Harris, Rice, & Quinsey, 1993), the Sex Offender Risk Appraisal Guide (SORAG; Quinsey, Rice & Harris, 1998, 2006), and their combined revision (VRAG-R; Rice, Harris, & Lang, 2013).

1.2.1.1 Static-99/R and Static-2002/R.

These instruments refer to a collection of the most widely used static actuarial risk tools for sexual offenders. The Static-99R consists of 10 items, including a revised age weighted item, while the Static-2002R consists of 14 items and also an age weighted item revised from the original. The instrument content includes sexual and nonsexual criminal history and offender and victim demographic variables. Collectively they are referred to as the STATIC instruments. Meta-analytic research from 24 samples (n = 8,390) supported the predictive accuracy of the STATIC family of tools for sexual recidivism, with AUC values of .72 and .71 obtained for the Static-99R and Static-2002R, respectively (Helmus et al., 2012).

1.2.1.2 VRAG and its derivatives.

The VRAG (Harris et al., 1993; Quinsey et al., 1998; 2006) is another second generation actuarial risk measure consisting of static items that was designed for the purpose of predicting which serious offenders would commit at least one violent offense once released from custody. The VRAG was developed through the examination of the predictive accuracy of roughly 50 variables that had previously been empirically identified as predictive of violent or criminal behavior, and variables for which clinical practitioners had identified as potential predictors. Using a linear regression approach, the 12 variables with the strongest relationship with violent recidivism, defined dichotomously as a new charge for a violent offense, were selected for inclusion in the VRAG. The validity of the VRAG has been studied extensively, demonstrating high inter-rater reliability and predictive accuracy across numerous samples (Quinsey et al., 2006). The VRAG has additionally demonstrated utility in predicting violent recidivism with sexual offenders (Rice & Harris 1997). The VRAG produces numerical probability estimates of the likelihood that offenders will violently recidivate within 10 years (Quinsey et al., 2006).

The VRAG takes into account any act of violence when assessing recidivism, meaning that sexually violent acts are included (Quinsey et al., 2006). Quinsey and colleagues, however, explained that some factors related to violent recidivism for sexual offenders, such as victim injury, show an inverse relationship in the general offender population and thus, sexual offenders may require a different instrument from nonsexual offenders. Due to the high nonsexual recidivism rates of sexual offenders, the SORAG was created through multivariate methods to predict the reconviction of a sexual or violent offense within sexual offenders specifically. The SORAG demonstrated high inter-rater reliability and predictive accuracy for violent (including

sexual) recidivism that was slightly higher than for sexual recidivism. Recently, the creators of the instruments created a revised version, the Violence Risk Appraisal Guide-Revised (VRAG-R; Rice et al., 2013) that combined the VRAG and SORAG into one streamlined measure. The authors reported that the simplified VRAG-R was less onerous to score, but achieved similar large effects in predicting recidivism when compared to the VRAG.

Although the VRAG and SORAG have demonstrated predictive accuracy in identifying offenders who will reoffend sexually and/or violently, the static nature of the instruments does not take into consideration the potential to lower risk based on progress in treatment (Quinsey et al., 2006). Additionally, the utility of static measures resides almost solely in risk assessment, providing little information for individualized treatment planning (Olver, Wong, Nicholaichuk, & Gordon, 2007). Measures that incorporate dynamic risk variables are, however, equipped to inform about criminogenic needs or treatment targets and measure changes made in treatment (Olver et al., 2007; Wong, Olver, & Stockdale, 2009). In a meta-analysis of the characteristics of sexual recidivists, Hanson and Morton-Bourgon (2005) stated that an important research question that requires addressing is whether or not changes made on criminogenic needs in treatment translate to decreased risk of recidivism.

1.2.2 Examples of third/fourth generation sexual offender risk assessment measures

Sexual offender risk assessment tools that incorporate well-established predictive static risk factors with dynamic factors, which add incremental predictive power and inform treatment needs and change, have been developed (Olver, et al., 2007). There are a large number of dynamic sexual offender tools that could properly fall under either the third generation by virtue of their inclusion of dynamic risk variables, or the fourth generation given their evaluation of change and case management applications from the point of intake to case closure. Some pertinent examples include the Stable and Acute 2007 (Hanson, Harris, Scott, & Helmus, 2007), Sexual Violence Risk-20 (SVR-20; Boer, Hart, Kropp, & Webster, 1997), Structured Risk Assessment-Forensic Version (SRA-FV; Thornton & Knight, 2013), Sex Offender Treatment Intervention and Progress Scale (SOTIPS; McGrath, Lasher, & Cumming, 2012), and the Violence Risk Scale-Sexual Offender version (VRS-SO; Wong, Olver, Nicholaichuk, & Gordon, 2003). Given that the focus of the present program of research is on the VRS-SO, this tool is discussed in further detail below.

1.2.2.1 Violence Risk Scale Sexual Offender version.

Advancing the criteria outlined by Andrews et al. (2006) and Campbell et al. (2009), the VRS-SO can be classified as a fourth generation risk measure. The VRS-SO was developed to assess recidivism risk in sexual offenders, via a combination of static and dynamic items, and additionally provide information on treatment targets and quantitative measures of treatment change. Originally, 24 static items identified in the literature were selected and the seven items with the strongest correlation to sexual recidivism were included in the final measure (Olver et al., 2007). A detailed review of the sexual offender prediction and treatment literature identified the 17 dynamic risk variables that were also included. Finally, factor analysis of the VRS-SO dynamic items revealed a three-factor solution including: Sexual Deviance, Criminality, and Treatment Responsivity. The static, dynamic, total, and factor scores of the VRS-SO have all demonstrated predictive power for sexual recidivism. Additionally, treatment changes as measured by the VRS-SO were significantly related to changes in risk to recidivate. This indicated that scores on the dynamic factors can change throughout treatment and that such changes are risk-relevant.

1.3 A Brief Overview of the Sexual Offender Treatment Literature.

Before addressing the therapeutic responses of psychopathic sexual offenders specifically, it is worth briefly reviewing the literature for the efficacy of treatment aimed at reducing risk in the general sexual offender population. Research has found the cognitive-behavioral treatment of sexual offenders to be associated with reductions in rates of sexual and nonsexual recidivism, particularly with moderate to high-risk sexual offenders, relative to appropriate controls (Hanson, Bourgon, Helmus, & Hoggson, 2009). In their meta-analysis of sexual offender treatment programs and recidivism outcome, Hanson and colleagues (2009) examined 23 sexual offender treatment outcome studies that were selected on the basis of methodological quality. They found that relative to controls, treated sexual offenders had lower rates of sexual and general recidivism, with an odds ratio of .77 obtained with respect to reductions in sexual violence. That is, for every 100 untreated sexual offenders who would go on to sexually reoffend, only 77 treated sexual offenders would reoffend, a relative reduction of approximately 23%. Of particular importance, they found that programs that adhered to the RNR model demonstrated the most substantive reductions in recidivism, such that greater adherence to a larger number of principles was associated with successively larger reductions in sexual and

other forms of recidivism. In all, they concluded that RNR principles are relevant for sexual offenders and should be incorporated into their treatment. Therefore, it appears evidence suggests that best-practice treatment programs, including cognitive-behavioral and relapse prevention techniques, have shown to be successful in reducing sexual recidivism in sexual offenders, but the success of treatment with the most high-risk sexual offenders is still unclear (Abracen, Looman, & Langton, 2008). Abracen and colleagues noted that it is therefore worth expanding our knowledge on the efficacy in particularly high-risk offenders.

Scholars have suggested that establishing evidence for the successful treatment of offenders in general provides the initial seed of hope for the psychopathic subgroup of offenders to also benefit (Polaschek, 2014). Shaw and Porter (2012) further suggested that psychopathy might have a strong association with sexual offending, because their innate lack of empathy for victims, their calculated desire for sex, and the sexual gratification of inflicting pain could all decrease barriers for committing sexual assault. Therefore, it seems that further investigation into the efficacy of violence reduction treatment for psychopathic sexual offenders specifically, is necessary and warranted.

1.4 Therapeutic Responses of Psychopathic Offenders: An RNR Perspective

In reference to the RNR model, numerous studies have found that elevated scorers on the PCL-R are at a higher risk to recidivate and thus they, should be considered high-risk offenders (Leistico, et al., 2008; Olver & Wong, 2006; Polaschek & Daly, 2013). More specifically, PCL-R total scores and Factor 2 scores have been found to be significantly associated with violent and general recidivism, whereas Factor 1 scores demonstrate a weaker association with recidivism (Wormith et al., 2007). Simourd and Hoge (2000) additionally pointed out that those offenders with greater PCL-R scores also presented with higher scores on static and dynamic risk/need measures. Studies also found that risk for violent recidivism in offenders with both comorbid personality disorders (Grann, Långström, Tengström, & Kullgren, 1999) and comorbid schizophrenia (Tengström, Grann, Långström, & Kullgren, 2000) was better accounted for by PCL-R scores than well-established risk factors for violent recidivism. Indeed, the PCL-R is so linked to risk assessment that scores on the tool have been incorporated to both violent and sexual risk measurement tools, such as the VRAG and the SORAG (Quinsey et al., 1998, 2006). To this end, Hemphill and Hare (2004) insisted that the PCL-R adds to the utility of those risk measures, as opposed to competing with them because it is not solely a risk assessment tool.

For sexual offenders, however, Olver and Wong (2009) concluded that psychopathy did not necessarily equate with high risk for sexual recidivism, but it did appear to be risk-relevant for violent and general reoffending. Factor 1 scores, however, were more strongly associated with sexual recidivism among sexual offenders and this was especially the case when sexual deviance and psychopathic characteristics were both present in an offender (Olver & Wong, 2006). Thus, given that psychopathic sexual offenders also tend to pose a high recidivism risk, they have a need for high-intensity treatment aimed at reducing their risk to reoffend once they are released from custody, in order to lessen their burden on the greater society (Reidy, Kearns, & Degue, 2013).

PCL-R scores additionally carry implications for the need principle of the RNR model. Simourd and Hoge (2000) rated 321 inmates on the Level of Service Inventory-Revised (LSI-R; Andrews & Bonta, 1995); a risk/need tool that contains 10 subcomponents measuring empirically supported criminogenic needs and risk factors. The researchers found that compared to nonpsychopathic offenders, psychopathic offenders (based on high PCL-R scores) had significantly greater criminogenic needs on nine of the ten subcomponents on the LSI-R. Olver and Wong (2009) also found that Factor 2 bore particularly strong convergent associations with dynamic VRS-SO scores, particularly the Criminality factor. This indicated that the antisocial lifestyle features of psychopathy were associated with a great number of treatment needs. Wormith et al. (2007) noted that the extant literature on psychopathy tends not to discuss psychopathy in terms of criminogenic needs, however, even though psychopathic offenders present with many. Therefore, from an RNR perspective psychopathic offenders may be best conceptualized as high-risk, high criminogenic need offenders (Shaw & Porter, 2012; Simourd & Hoge, 2000).

Although psychopathic offenders should be targeted for violence reduction treatment, general clinical consensus is that they tend not to make prime candidates for treatment, despite the lack of quality outcome studies (Simourd & Hoge, 2000). Psychopathy has been proposed as an important responsivity issue to take into consideration when assigning offenders different styles of treatment (Gendreau, Goggin, & Smith, 2002; Simourd & Hoge, 2000). This in part is due to findings that psychopathic offenders display low motivation for treatment compared to nonpsychopathic, less high-risk offenders (Olver & Wong, 2011). Furthermore, a negative relationship has been found between higher scores on the PCL-R and treatment dropout (Olver &

Wong, 2011; Ogloff, Wong, & Greenwood, 1990). Further, for those who do remain in treatment, psychopathy has been linked to poor attendance to aspects of the program (Hildebrand & de Ruiter, 2012). In terms of sexual offending specifically, the presence of psychopathy may indicate a greater likelihood of failure in treatment, over being assessed as higher dynamic needs (Olver & Wong, 2011). In fact, both dimensional scores on the PCL-R and a diagnosis of psychopathy were found to be two robust predictors of treatment dropout in a meta-analysis examining predictors of treatment attrition in the general and sexual offender population (Olver, Stockdale, & Wormith, 2011). Moreover, the impact of fewer days spent in treatment was not insignificant, as evidenced by lower therapeutic change scores captured by the VRS-SO for those offenders who left treatment early (Olver & Wong, 2011). Thus, it appears that an important aspect of treatment aimed at rehabilitating psychopathic offenders should be focused on retention within the program.

For those psychopathic offenders who do remain in treatment, it has been proposed that scores on the PCL-R may again, be useful to inform treatment providers of specific responsivity issues (D'Silva, Duggan, & McCarthy, 2004; Hildebrand & de Ruiter, 2012; Hobson, Shine, & Roberts, 2000; Simourd & Hoge, 2000). Past research on therapeutic community treatment found a significant relationship between PCL-R Factor 1 scores and negative behaviors in therapy groups and on the ward (Hobson et al., 2000). The authors found a particularly strong relationship between negative treatment behaviors and the following PCL-R items: glibness/superficial charm, grandiosity, and failure to take responsibility. Thus, the researchers concluded that Factor 1 PCL-R scores should be considered when assessing an offenders' suitability for participation in a therapeutic community (Hobson et al., 2000). Olver and Wong (2009) also pointed out that the interpersonal style of the psychopathic offender makes them particularly challenging to treat and forging a therapeutic relationship that dissuades them from dropping out is another difficult task.

Psychopathic offenders who remain in a group may cause serious challenges for the treatment providers. Indeed, researchers have noted that one of the largest barriers in conducting treatment within a correctional setting involves maintaining fidelity to the responsivity principle, and in turn, to the program itself (Wong & Gordon, 2013). Psychopathy has been found to be a significantly associated with serious institutional misconduct, (excluding physical aggression) among sexual offenders (Buffington-Vollum, Edens, Johnson, & Johnson, 2002) and forensic

psychiatric patients (Hildebrand, de Ruiter, & Nijman, 2004), causing serious safety and group dynamic concerns. It is conceivable that the disruptive behaviors and challenging personality traits of psychopathy could further create a difficult dynamic between the treatment staff focused on rehabilitation and the correctional staff who are concerned with safety and justice. On a promising note, a recent study of the influence of psychopathy on therapeutic communities found that, treatment groups consisting of low PCL-R scorers reported greater cohesion, but the environment for a group of high scoring PCL-R offenders was not entirely negative (Harkins, Beech, & Thorton, 2012). The high PCL-R group members reported an overall positive group environment on a self-report measure, and the psychopathic offenders who had been in treatment for a lengthy period of time reported increased group cohesion to a level similar to that of the low PCL-R group at the onset of treatment. Therefore, the researchers postulated that the longer psychopathic offenders remained in treatment, the more skills they developed to improve on decreasing their interfering behaviors. They concluded that these findings bolstered enthusiasm for the potential for overcoming the difficulties of working these types of offenders.

Psychopathic traits may also be a specific responsivity issue in terms of the countertransference experienced by the clinicians providing the treatment. Polascheck and Daly (2013) made the apt comparison of the behavior of psychopathic individuals in a treatment setting to that of problematic students within a classroom. In a sense, they are disruptive and frustrating, and because of that, are often seen as not benefitting. This can impact the service provider in numerous, and often subtle ways, including frustration, burnout, boundary violations, and even co-conspiring with the patient (Reid & Gacono, 2000). Karpman (1946) noted that other individuals receiving treatment may present therapeutic challenges for the provider, but their helplessness or fragility draws empathy from the treatment provider. He indicated that the callous and manipulative psychopathic individuals, on the other hand, likely incite mainly negative reactions from the providers. Wilson and Tamatea (2013) noted that when psychopathy is addressed as a responsivity issue in a program designed to treat violent offenders though, attempting to change the personality structure of psychopathy itself becomes less important than is reducing violence in a group that happens to also be psychopathic. Adopting this stance may assist a provider in buffering against burnout.

1.5 Treatment Change Among Psychopathic Offenders and how it relates to Outcome.

It is clear that psychopathic offenders present serious concerns and challenges for treatment. Although there seems to be a general acceptance that the treatment prognosis of criminal psychopathy is bleak, relatively few quality research studies have actually explored it, or have their results fully supported that sentiment (Abracen et al., 2008; Polaschek, 2014; Polaschek & Daly, 2013; Reidy et al., 2013; Salekin, 2002; Shaw & Porter, 2012). It is worth noting at this point, that the main goal of treatment for psychopathy within the forensic or criminal justice system, where the bulk of the literature is based, is to reduce violent behavior and risk to recidivate, rather than directly altering psychopathic personality traits. Wong, Gordon, Gu, Lewis, and Olver (2012) pointed out that the behavioral and lifestyle items captured by Factor 2 of the PCL-R are likely more amenable to treatment than the personality factors, and are closely linked to criminogenic needs associated with antisociality and persistent criminal activity. Thus, they lamented that offender treatment efforts should target those problems, including impulsivity, irresponsibility, sensation seeking, etc., in order to reduce the risk of future violence and offending. Moreover, the primary concerns of the criminal justice system are that of a harm reduction model, involving rehabilitating offenders towards less criminal behavior.

Some have suggested however, that if indeed psychopathy is not amenable to treatment, subjecting a psychopathic offender to legally mandated treatment may not only be ethically questionable and disregard their autonomy (Lee, 1999), but may also be a poor financial investment, because the desired gains are unlikely to occur (Felthous, 2011). Furthermore, a study assessing the influence of expert testimony in sentence hearings found that PCL-R score was inversely related to perceived treatability (Lloyd, Clark, & Forth, 2010). Moreover, the authors found tentative evidence for treatability, but not risk level, influenced the trial outcome. This meant that the presumed treatment resistance of psychopathy could have real consequences for the sentences that offenders receive. Consequently, it is important for a variety of practical reasons that a clear picture of the risk relevant treatment responses of psychopathic offenders be understood. Harris and Rice (2006) cautioned that, due to the interpersonal characteristics of psychopathic offenders in particular, therapist ratings of progress are insufficient to capture treatment change and must be paired with objective measures of criminal behavior, such as recidivism rates. When the relationship of treatment behavior and change to recidivism in

psychopathic offenders has been taken into account, however, findings have been somewhat conflicting.

In a highly cited psychopathy treatment-outcome study, Rice and colleagues (1992) compared psychopathic offenders and matched controls on violent recidivism following treatment in a therapeutic community. They found troubling results that treatment was related to higher rates of violent reoffending upon release in psychopathic offenders. Although that was not the case with nonpsychopathic offenders, where treatment had the intended effects of lower rates of reoffending. Possible explanations for the findings, however, included considerable concerns about the ethicality and delivery of treatment through a therapeutic community where participation was involuntary, no attention was paid to addressing criminogenic needs, and the development of compassion and empathy was prioritized through questionable practices (e.g., sleep deprivation, group pressure, injection of hallucinogenic substances). This is particularly problematic in a high risk, high needs, callous sample of offenders, for whom such effects could likely be iatrogenic. Furthermore, the avenue to exit treatment solely relied on convincing a review board that sufficient change had been demonstrated, meanwhile behavioral digressions and outbursts were viewed as evidence that further therapeutic intervention was necessary. This may have created significant incentive for a psychopathic individual to sharpen their deceptiveness to manipulate their way out of treatment, while divesting little genuine effort towards change.

Some years after Rice and colleagues' publication (1992), a program of psychopathy-sexual offender treatment outcome research was conducted out of Warkworth Institution's Sexual Behavior Clinic (WSBC). In the first report, Seto and Barbaree (1999) found that offenders who had many psychopathic traits and displayed more good treatment behaviors were, contradictorily, more likely to commit a new violent offense compared to psychopathic offenders who behaved poorly in treatment, and nonpsychopathic offenders in general. Specifically, psychopathic offenders who behaved well in treatment were more than five times likelier to commit a serious offense once released. An extended follow-up of this sample was later conducted with recidivism information gathered from a national database, the Canadian Police Information Centre (CPIC) (Barbaree, 2005). Using the more comprehensive and accurate recidivism data, Barbaree (2005) found that although psychopathy continued to predict re-offense after release from custody, the effect of treatment behavior was no longer significant. In

other words, no recidivism differences were found between psychopathic offenders manifesting positive or negative treatment behavior. In an extension of this work featuring the use of CPIC outcome data as well as a larger sample and more stringent (25 point) cutoff for psychopathy, Langton and colleagues (2006) found a significant interaction between psychopathy, treatment behavior, and sexual recidivism; that is, psychopathic men demonstrating positive treatment behavior had significantly lower rates of sexual recidivism, while the differences trended toward significance for violent recidivism

A recent investigation of the influence of a therapeutic community treatment program on dynamic needs within a Dutch forensic psychiatric setting, found that both the psychopathic and nonpsychopathic offenders increased their level of interpersonal aggression, dominance, and exploitation as treatment progressed (Hildebrand & de Ruiter, 2012). The authors noted, however, that a major limitation to their treatment program was its lack of fidelity to the principles of RNR. Although dynamic needs were the outcome criteria, they were not specifically targeted, but the interpersonal processes within the therapeutic community were given more attention. This suggested that it might not be psychopathy that is untreatable, but the adherence to evidence-based practices that becomes the problem. In sum, it is clear that the studies that have garnered most support for psychopathy not being amenable to treatment have had significant flaws that bring in to question the validity of their results.

Researchers have found that the vast majority of studies endeavoring to examine the treatability of psychopathy in adults have had concerning methodological flaws (Abracen et al., 2008; Looman, Abracen, Serin, & Marquis, 2005; Reidy et al., 2013). Whether the treatment itself is considered by today's standards outdated, there was a lack of matched or randomized control group, improvement was assessed subjectively rather than through validated treatment change measures, recidivism was not an outcome criterion, or through the unstandardized assessment of psychopathy itself, conclusions regarding treatability may be tenuous at best (Abracen et al., 2008; Reidy et al., 2013). Thus, Abracen and colleagues (2008) provided numerous suggestions to improve the strength of future research including: delineate treatment approach, use the PCL-R to measure psychopathy, utilize lengthy follow-up periods after treatment is completed, have large forensic sample sizes, employ standardized and systematic measures of treatment gains, assess rates of recidivism as the outcome variable, use matched control groups, and explore the relationship of psychopathy with substance abuse and sexual

deviance. Researchers have further argued for the importance of evaluating treatment effects for programs that adhere to the "what works" correctional principles, consistent with the RNR model, in order to comment on the treatability of psychopathy with any modicum of confidence (Olver et al., 2013). Those researchers further noted the importance of quantifying altered risk levels across treatment by measuring change. Finally, the expectation of complete eradication of future violent offending/harm is likely unrealistic, but there may be merit in finding harm or recidivism reduction.

In their review of the psychopathy treatment literature, Polaschek and Daly (2013) highlighted the importance of measuring psychopathic and nonpsychopathic offenders on risk/need variables pre- and post-treatment and then comparing the two because, by nature of scoring high on the PCL-R, they are higher risk. Due to this, they may evidence relatively the same amount of change as their nonpsychopathic counterparts, but still remain higher risk overall. By comparing both groups on pre- and post-measurements, the compounding factor of risk can be accounted for and overall amounts of change can be compared. This would shed light on the possible moderating effect of risk on psychopathy and treatment, along with the possible need for variability in required doses of treatment (Reidy et al., 2013). Furthermore, the authors noted that completing objective measures of change may prevent misleadingly negative impressions about the progress made, based on the potentially challenging and frustrating nature of providing interventions for this population.

Skeem, Monahan, and Mulvey (2002) further found evidence to support the notion that amount of treatment is another important factor in effectively reducing risk for violence in psychopathic civil psychiatric patients. Specially, after controlling for many variables associated with attending treatment, the authors found that psychopathic patients benefitted similarly to nonpsychopathic patients when they received sufficient amounts of treatment. This would be consistent with the RNR conceptualization of psychopathy being indicative of high risk and thus, greater intensity of treatment is warranted. Skeem and colleagues did note that future research would benefit from a more rigorous examination of gains made in treatment, as opposed to self-reported treatment attendance, and identifying how those gains relate to future violence.

1.5.1 Results from recent treatment outcome studies for psychopathic offenders

Recent studies examining psychopathy and response to programs have incorporated more evidence informed offender rehabilitation practices and improved on methodological issues,

leading to more promising findings. Chakhssi, de Ruiter, and Bernstein (2010) explored the treatment change of 74 psychopathic and nonpsychopathic forensic psychiatric patients diagnosed with personality disorders. Treatment involved numerous individual and group therapeutic interventions utilizing tenets of motivational interviewing, cognitive behavioral therapy (CBT), and relapse prevention. Based on a cut-off of 26 points on the PCL-R, 27 offenders were classified as psychopathic and 47 as nonpsychopathic. Treatment change was captured by a nurse-rated instrument called the BEST-Index, which assessed risk relevant behaviors including social skills, insight, interpersonal hostility, and physical violence. A reliable change index was applied to the scores on the BEST-Index over four measurements to determine change.

Chakhssi and colleagues (2010) found that psychopathic patients had significantly more diagnoses of Antisocial and Narcissistic Personality Disorder, which could be taken as evidence of greater responsivity factors. Overall, they found that scores on the BEST-Index improved across treatment at a similar rate for both psychopathic and nonpsychopathic patients. This indicated that both groups benefitted from treatment, as anticipated. Moreover, based on the reliable change index scores, 37.0% of the psychopathic patients demonstrated reliable improvement, taking in to account measurement error, while only 7.4% showed reliable deterioration. That being said, the psychopathic patients demonstrated significantly more interpersonally hostile and physically violent behaviors at the final assessment compared to nonpsychopathic offenders. Chakhssi and colleagues (2010) concluded that overall, psychopathic and nonpsychopathic offenders evidenced responsiveness to forensic inpatient treatment, with some differences in terms of changes made. No significant differences on the PCL-R facet scores accounted for the discrepancies in treatment change. Thus, it may be that additional factors, such as criminogenic risk factors, or treatment responsivity concerns were accounting for the differences. Finally, they remarked that it is imperative to continue exploring the relationship between treatment changes and future violent offending behavior to determine whether treatment responsiveness does indeed translate into lower failure rates.

Recently, an experimental treatment program for violent psychopathic offenders was tailored to reduce violence while responding to psychopathy as a responsivity issue. It was developed in New Zealand (Wilson & Tamatea, 2013). The program incorporated RNR principles, a collaborative approach, the assessment of dynamic needs pre and post-treatment,

relapse prevention planning, and ample training to the prison staff who frequently encountered the offenders. Wilson and Tamatea found that the psychopathic offenders, as indicated by PCL-R scores greater than 27, evidenced reduced criminogenic needs and improved emotional stability and impulse control. Furthermore, the majority of the offenders reduced their security ratings both within the institution and upon release, and managed to desist completely or reoffended with lesser severity. This experimental program highlighted the potential utility of targeting offending behaviors associated with psychopathy in a high-risk sample. Meanwhile it reinforced the optimism for the goal of harm-reduction in psychopathy interventions.

Similar interventions and lines of research have been extended to adolescent offenders with significant callous and unemotional traits, hallmarks of a fledging psychopathic personality. One program operated out of Madison Wisconsin and was found to successfully reduce psychopathic traits, including callousness and impulsivity, in adolescent offenders (Caldwell, McCormick, Wolfe, & Umstead, 2012). This reduction in turn translated into improvements in institutional conduct. The success of that program may have been in part due to daily behavioral monitoring and alterations in reinforcement schedules, providing immediate reward for good behavior in individuals that may be less incentivized by longer-term goals. Further, the treatment included general and specific responsivity factors such as implementing a CBT approach and individualizing the treatment to each offenders needs, processing interpersonal interactions, and skills training components (Caldwell, et al., 2012). An additional study examined the treatment of adolescent offenders utilizing a multisystemic approach aimed at increasing parental strengths (Manders, Deković, Asscher, van der Laan, & Prins, 2013). They found success in reducing narcissism, impulsivity, and externalizing behaviors, but did not reduce the callous unemotional traits consistent with the psychopathic personality. This seems to buttress the notion that behaviours correlated with, or resulting from the psychopathic personality (e.g. violence), may be more amenable to intervention than the underlying personality traits themselves. Among adolescents, however, it is possible that some such features may be more realistically amenable to intervention than among adult offenders, for whom such traits may be particularly ingrained.

Recent research has examined possible changes in community recidivism as an outcome from psychopathic offenders participating in RNR-based correctional programs. Three Canadian studies (Olver, Lewis, & Wong, 2013; Wong, et al., 2012; Olver & Wong, 2009) particularly germane to the present program of research are reviewed here.

1.5.1.1 Olver, Lewis, and Wong, 2013

Olver and colleagues (2013) retrospectively explored violent risk related treatment change in a sample of 152 federally incarcerated violent male offenders. Each participated in a treatment program aimed at reducing violent behaviors called the Aggressive Behavior Control (ABC) Program at the Regional Psychiatric Centre (RPC) in Saskatoon, Saskatchewan Canada. The treatment program adhered to the RNR model, administering high intensity treatment to high-risk offenders and encompassed social learning and CBT techniques, while adapting to specific responsivity issues for the individual offenders. Psychopathy was operationalized by the PCL-R and treatment change was assessed using the Violence Risk Scale (VRS; Wong & Gordon, 2000), wherein risk relevant treatment changes were captured via pre- and post-treatment ratings. Recidivism was captured by official criminal convictions during incarceration and following release to the community.

The authors found that all facets of psychopathy were related to lower treatment change, but the affective, and interpersonal traits involving emotional detachment, shallow affect, and manipulation significantly predicted worse progress in treatment. Psychopathy was a significant predictor of future violence, with the affective traits, including lack of empathy or remorse and failure to accept responsibility being the only unique predictors. Olver and colleagues further found that therapeutic change, as measured by the VRS, was associated with decreased violent recidivism after controlling for psychopathy. Finally, they found that offenders high in psychopathic traits, but low in treatment change had significantly faster and higher rates of violent recidivism than the highly psychopathic offenders who demonstrated large treatment gains and the low psychopathic group with high treatment gains. The high psychopathy low treatment change group, however, did not have a significantly higher rate of recidivism than the low psychopathy group with poor progress in treatment. Taken together, these findings provided evidence to support psychopathy as being linked to poorer treatment progress. But some were able to benefit from treatment and had recidivism rates lower than psychopathic offenders who failed to benefit.

1.5.1.2 Wong, Gordon, Gu, Lewis, & Olver, 2012

An additional study examined the recidivism of 32 psychopathic offenders treated in the ABC program, compared to 32 matched treatment-as-usual controls (Wong, et al., 2012). The control group was matched on race, age at first conviction, PCL-R total, Factor 1, and Factor 2

scores. Rather than simply examine the presence or absence of recidivism, the authors examined eleven outcomes related to reoffending, along with seven outcome variables related to reconviction sentence length. The authors suggested that sentence length provided a proxy for offense severity, with longer sentences equating to offenses of greater severity. Wong and colleagues found no significant differences between the ABC treated psychopathic offenders and the control group in terms of binary violent recidivism or number of new convictions. All outcomes though, were trending towards significance in the expected direction with the ABC group having better outcomes. In terms of sentence length (i.e., a proxy of recidivism severity), however, the ABC group showed shorter sentence lengths on all seven outcomes, three of which reached statistical significance. The authors suggested that this provided evidence that psychopathic offenders committed less severe offenses following treatment, which supported the harm-reduction model for the treatment of psychopathy.

1.5.1.3 Olver and Wong, 2009

Olver and Wong (2009) explored the relationship of treatment attrition and change with violent and sexual recidivism in a sample of 156 male sexual offenders treated at the Clearwater Sex Offender Treatment Program at the Regional Psychiatric Centre (RPC) in Saskatoon, SK. The Clearwater Program treated high-risk sexual offenders following the principles of effective correctional interventions (see below for further description). The VRS-SO was rated via file-information and the treatment change scores were used to capture sustained improvements in criminogenic risk/need areas throughout treatment. In theory, these changes should be linked to reduced risk levels. Furthermore, the PCL-R was rated to measure psychopathy, with a 25-point cut-off applied to identify the psychopathic offenders. The average follow-up time post-release was 9.9 years and official recidivism information during this time was gathered via CPIC.

Olver and Wong (2009) explored a number of analyses with the PCL-R and VRS-SO factors. They found that Factor 1 of the PCL-R was positively correlated with the Treatment Responsivity factor of the VRS-SO, adding further support to the notion that the interpersonal and emotional traits of psychopathy are responsivity factors. Further, Factor 2 of the PCL-R was significantly correlated with the Criminality factor of the VRS-SO, reflecting their association of antisociality in general.

The researchers found that, although psychopathy was a predictor of treatment dropout, with 56% of the dropouts meeting criteria for psychopathy, the majority of psychopathic

offenders in their sample (73.3%) successfully completed the sexual offender treatment program. Thus, although psychopathy was predictive of dropout, perhaps pessimism towards treatment completion with psychopathic offenders is exaggerated. In terms of the impact of attrition on recidivism, Olver and Wong (2009) found that psychopathic offenders who dropped out of treatment violently recidivated at significantly higher rates than the psychopathic offenders who completed treatment. The difference was not significant for sexual recidivism though. This suggested that the failure to complete treatment did have significant consequences on violent offending for psychopathic offenders upon release. The researchers noted though, that treatment completion did not necessarily equate with meaningful gains and thus, the relationship of treatment change and recidivism was further explored.

Olver and Wong (2009) examined the relationship of psychopathy and risk level to sexual recidivism. They found that high-risk offenders, regardless of psychopathy had higher rates of sexual recidivism. Furthermore, the VRS-SO was a stronger predictor of sexual recidivism, whereas PCL-R more robust for violent recidivism. These findings suggested that risk assessment measures designed for assessing dynamic risk and need related to sexual offending specifically, were more informative regarding sexual recidivism than was psychopathy. That being said, the same was not true for violent recidivism, where psychopathy was a relevant predictor.

The VRS-SO treatment change scores were employed for a number of analyses. The authors noted that the comprehensive scoring of treatment change reduced the opportunity for inflated scores resulting from impression management and manipulation on behalf of the psychopathic offender. Olver and Wong (2009) found that, by controlling for static risk and treatment change, the PCL-R no longer significantly predicted sexual recidivism, whereas VRS-SO static risk predicted increased sexual recidivism. For violent recidivism, the PCL-R, VRS-SO static risk, and treatment change scores all significantly predicted in their expected directions. Moreover, they found that higher treatment change scores related to lower risk of violent and sexual recidivism, regardless of PCL-R scores or risk for sexual recidivism. The authors also found that higher treatment change was significantly related to lower violent recidivism for psychopathic, but not nonpsychopathic individuals, regardless of risk level. As for sexual recidivism, treatment change was negatively correlated with outcome among only nonpsychopathic high-risk offenders, but was not significant for either the psychopathic or the

low-risk offenders. Overall, Olver and Wong concluded that these findings failed to provide support for the argument that psychopathy is untreatable. Rather, they argued that demonstrating progress in treatment, regardless of psychopathy and risk level, should regulate risk for future sexual and violent reoffending.

Polaschek and Daly (2013) noted the study's strengths in quantifying treatment change and exploring its association with rates of recidivism and encouraged future researchers to follow suit. Polaschek (2014) further recognized the strength of this type of investigation as twofold: examining follow-up data regarding rates of recidivism provides an indirect measure of treatment effectiveness; meanwhile treatment change provides a direct measure. Therefore, this moderates the criticism of forensic research relying solely on recidivism as an outcome measure (Gullhaugen & Nøttestad, 2012), because movement on criminogenic needs is also directly assessed. Polascheck and Daly (2013) further recognized that the relationship between risk, psychopathy, and treatment change should continued to be explored in order to tease apart the influence that psychopathy has on treatment response, above that of which is accounted for by risk level.

1.5.2 Moving Forward: Continuing the Investigation of the Therapeutic Responses of Psychopathic Offenders.

In sum, the treatment of psychopathic offenders and its relationship to possible reductions in recidivism are widely noted as important issues, but there remains a paucity of research investigating it (Abracen et al. 2008; Polaschek, 2014; Polaschek & Daly, 2013; Reidy et al., 2013; Salekin, 2002; Shaw & Porter, 2012). A 2004 literature review of studies concerned with PCL-R scores and response to treatment determined at the time that there was not enough evidence to conclude that a high score on the PCL-R was indicative of a negative response to treatment (D'Silva et al., 2004). Rather, a growing collection of studies has found that psychopathic offenders who reduced their risk as a result of treatment, demonstrate lower rates of recidivism (Looman et al., 2005; Olver & Wong, 2009; Olver et al., 2013; Wong et al., 2012).

Systematic reviews of the psychopathic sexual offender treatment literature have concluded that, although some fail to benefit from treatment, there were groups of psychopathic offenders whose recidivism rates following intervention were similar to nonpsychopathic offenders (Abracen et al., 2008; Doren & Yates, 2008; Polaschek & Daly, 2013; Shaw & Porter, 2012). Specifically, the type of treatment and its fidelity to the RNR model, quantitative

measures of treatment change, and accurate measures of recidivism provided some therapeutic optimism (e.g. Olver & Wong, 2009; Wong et al., 2013). These findings indicated a need to examine closer the ability of highly psychopathic offenders to make meaningful gains during treatment, before we become too optimistic (Reidy et al., 2013) or remain too pessimistic for that matter. Researchers have suggested that a greater understanding of the etiology of psychopathy, coupled with methodologically sound systematic investigations of the relationship between psychopathy and treatment change are imperative to increase our understanding of the treatability of psychopathy (Lee, 1999; Polaschek & Daly, 2013; Salekin, 2002). Thus, it is important to examine whether or not the therapeutic changes made in treatment by psychopathic offenders translate into a meaningful reduction of recidivism once they are released into the community.

1.6 Subtypes of Psychopathic Offenders

The inconclusive evidence for the treatability of psychopathy may in part reflect the heterogeneity of psychopathic offenders (Mealey, 1995b; Olver, Sewall, Sarty, Lewis, & Wong, 2015; Polaschek & Daly, 2013; Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003). The notion that psychopathy is a heterogeneous construct, rather than homogeneous, has been pondered for many years (e.g., Karpman, 1941). Psychopathic offenders are typically addressed in treatment as a uniform group defined by their scores on the PCL-R (Olver et al., 2015). But Olver and colleagues further pointed out that two offenders could have identical scores on the PCL-R, but present vastly different in treatment depending on their proportionate make-up of Factor 1 or Factor 2 traits. Skeem and colleagues (2003) suggested that it may be useful to uncover a prototype of a certain variant of psychopathy, for which others can be compared along a continuum of traits. This would capture both the discrete (i.e., whether one is similar to prototype "A", or prototype "B") and categorical (i.e., how similar is one to either prototype) dimensions of psychopathy. Treatment targets could then be altered accordingly.

In the initial discussion of psychopathy subtypes, Karpman (1941, 1946) postulated that the primary and secondary subtypes presented as phenotypically similar, but differed on impetus for behavior and etiology. He suggested that primary psychopathy was largely heritable and characterological in nature. Conversely, secondary psychopathy originated in response to environmental causes. And so the two types may behave similarly, but do so via different motivations. Consequently, he presupposed that the primary subtype would likely be untreatable

and should be subjected to indefinite incarceration regardless of the severity of the crime, while the treatability of secondary psychopathy was viewed as more optimistic. Researchers have built upon Karpman's theories supporting the view that primary psychopathy is genetically predisposed, whereas secondary psychopathy develops through emotional detachment and subsequent failure to acquire a conscience as a response to abuse (Porter, 1996), or from an evolved response to being competitively disadvantaged (Mealey, 1995a, 1995b). Mealey noted that the genetic basis of primary psychopathy accounts for its situational stability across the lifespan and its appearance across cultures and social backgrounds, whereas secondary psychopathy is more influenced by suboptimal environmental factors and is less stable.

Brinkley and colleagues (2004) argued that it is imperative that the heterogeneity of the etiological variants of psychopathy be understood in order to tailor interventions to the mechanisms underlying the specific etiology. They noted that just as different etiological pathways leading to global cognitive impairments would do little to inform about differences in their overall functioning, it would inform interventions (i.e. that resulting from traumatic brain injury would have different treatment needs than that of developmental delay), the same goes for psychopathy. The authors stated that "these different etiologic pathways can be relatively independent of risk prediction but not treatment planning" (Brinkley, Newman, Widiger, & Lynam, 2004, p. 73).

More recently, a number of studies have discovered four (Hervè, 2003; Murphy & Vess, 2003) to ten (Millon & Davis, 1998) subtypes of psychopathic offenders, but the theory and evidence has amassed to indicate that the two subtypes of psychopathic offenders labeled, primary and secondary psychopathy, are most valid (Blackburn, 1975; Drislane et al., 2014; Hicks, Markon, Patrick, Krueger, & Newman, 2004; Karpman, 1941; Mealey, 1995a, 1995b; Mokros et al., 2015; Olver et al., 2015; Poythress et al., 2010; Skeem, Johansson, Andershed, Kerr, & Louden, 2007; Swogger & Kosson, 2007). The primary, or "classic" psychopathic offender tends to be emotionally stable, without conscience, lacking guilt, and interpersonally dominant (Blackburn, 1975; Hicks et al., 2004; Karpman, 1941; Skeem et al., 2007). The primary psychopathic individuals tend to have higher total PCL-R scores and score higher on the Interpersonal and Affective facets (Hervè, 2003; Olver et al., 2011; Swogger & Kosson, 2007), and accordingly, have been conceptualized as the true "Clecklian" psychopath. The secondary psychopathic offenders, on the other hand, are more likely to score high on measures of anxiety,

suffer from emotional dysregulation, have higher rates of drug dependence, and display aggression and impulsivity (Blackburn, 1975; Hicks et al., 2004; Skeem et al., 2003, 2007; Swogger & Kosson, 2007). In terms of PCL-R scores, the secondary psychopathic offenders tended to have lower total scores but higher scores on Factor 2. Some discrepancy exists with studies finding either higher Antisocial facet scores (Olver et al., 2015; Mokros et al., 2015), or higher Lifestyle facets scores (Herv**é**, 2003; Poythress et al., 2014) for secondary psychopathy. This secondary subtype of psychopathic offender appears to be lacking the interpersonal features of the syndrome in particular (e.g., glib, manipulative, deceitful, grandiose), but is characterized by more persistent antisocial behavior and to a lesser degree, callousness and emotional detachment.

In light of their differences, researchers have suggested that the different subtypes may respond to treatment differently (Mealey, 1995b; Skeem et al., 2003), reflected by different rates of recidivism following intervention (Olver et al., 2015; Polaschek & Daly, 2013). But, agreement has yet to be established over which of the two subtypes is more amenable to treatment. Skeem and colleagues (2003) on the one hand, noted that much of the speculation pertaining to treatability of psychopathy subtypes is theoretically based on varied etiological pathways, but differences in the development of psychopathy does not guarantee that they will respond differently to treatment. Skeptics of the primary/secondary distinction further argued that the etiology of the subtypes is similar and thus, the distinction between the two is irrelevant for treatment (Gullhaugen & Nøttestad, 2012). Morana, Câmara, and Arboleda-Flórez (2006) adopted the stance that those psychopathic individuals who scored highest on Factor 1 and the Affective facet, indicating strong psychopathic personalities are likely not amenable to rehabilitation. On the other hand, Skeem and colleagues (2007) found that it was the secondary type who trended towards scoring lower on an item assessing treatment responsiveness. That being said, from an RNR model, primary subtypes, having greater Factor 1 traits, would likely provide more responsivity challenges, but secondary type, with greater Factor 2 scores, would likely be at higher risk and need for treatment due to its association with antisociality. In their review of their review of the extant literature on treatment of antisocial personality and psychopathy, Reid and Gacono (2000) emphasized that anxiety is a powerful motivator for treatment change. This suggests that secondary psychopathic offenders, who have been characterized as having greater levels of anxiety, may be more motivated and amenable to

treatment. Conversely, primary psychopathic offenders, who lack anxiety, may also lack critical motivation for change.

In parsing out the question of subtypes, it is important to consider subtypes that are theoretically sound and empirically validated, rather than entertaining a infinite number of variants (Skeem et al., 2003). Skeem and colleagues suggested that future research should focus on the external validation of theoretically informed clusters on variables such as violent behavior and treatment responses. Through integrating prior theory, the authors hypothesized that primary psychopathy should be characterized by higher Affective facet scores and lower Lifestyle facet scores compared to secondary psychopathy. Skeem and colleagues additionally noted that the subtypes should be differentiated on measures of trait anxiety, borderline personality traits, and narcissism, with the first two being higher for secondary and the last being higher for primary.

1.6.1 Secondary psychopathy or pseudopsychopathy?

Some have argued that secondary psychopathy would be better classified as sociopathy or pseudopsychopathy, due to less prominent interpersonal and affective characteristics that are considered crucial markers of psychopathy (Mokros et al., 2015). Those authors suggested that, although they may present as psychopathic, the etiological pathway is environmentally shaped and not genetically based as in true psychopathy. Thus, that group should be distinguished by a different name to avoid confusion. That being said, studies have found that secondary psychopathy does appear to display substantial traits inherent to the psychopathic personality, including callousness and emotional insincerity, and thus, the inclusion of "psychopathy" in the name of the second cluster is warranted in those cases (Drislane et al., 2014; Olver et al., 2015, Skeem et al., 2007). Akin to the example of global cognitive impairments, phenotypic characteristics or markers delegate labeling, as opposed to etiology. So, moving forward a variant may meet criteria to receive a psychopathy label if there is evidence of a significant amount of emotional detachment, affective shallowness, and insensitivity critical to psychopathy and captured by the Affective facet of the PCL-R. Determining a threshold of what is considered a "significant" or "nonnegligible" amount of those traits, though, has yet to be done.

1.6.2 Empirical support for primary and secondary subtypes of psychopathy.

A number of recent studies have supported and attempted external validation of the primary/secondary distinction. Skeem and colleagues (2007) applied model-based cluster analysis to a large sample of serious violent (nonsexual) psychopathic offenders with the PCL-R

facets and a measure of trait anxiety. Primary and secondary subtypes were found to be distinguishable by lower PCL-R facet scores (excluding the Antisocial facet) and higher trait anxiety in secondary psychopathy. External validation of the subtypes found the secondary type to have more borderline personality traits, irritability, social withdrawal, and major mental illness, with lower assertiveness and overall functioning. Also of note, the researchers found a trend towards secondary psychopathy being more responsive to treatment.

In two large samples of adult male offenders, Mokros and colleagues (2015) explored the possibility of subtypes using latent profile analysis on the four facets of the PCL-R. They found that three latent classes best fit the model, wherein two groups were variations of psychopathy and one of pseudopsyhopathy or sociopathy. Manipulative psychopathy was characterized by significantly greater Interpersonal facet scores and aggressive psychopathy scored higher on the Antisocial facet, but the two groups scored similarly high on the Affective and Lifestyle facets. The two groups reflected past conceptualizations of primary and secondary psychopathy. The authors further reported that pseudopsychopathy had significantly lower Affective scores than both of the psychopathy groups, and those traits (i.e. lack of empathy or remorse, shallow affect, etc.) were decidedly essential for the label of psychopathy. Comparing the two psychopathy groups, Mokros and colleagues found that the manipulative group had more years of education but similar IQ scores to the aggressive group, while the aggressive group had more symptoms of ASPD and criminal tendencies.

Poythress and colleagues (2010) applied model-based cluster analysis to the Interpersonal, Affective, and Lifestyle facets of the PCL-R and a number of measures of clinically relevant variables (e.g. anxiety, history of abuse, etc.) on a large sample of male offenders diagnosed with ASPD. They predicted that the secondary variant would score higher on measures of treatment engagement but also have more instances of institutional misconduct. Based on the relevant facet's associations with recidivism; they further hypothesized that the secondary type would have higher recidivism rates than the primary. They found three psychopathic subtypes, two of which mirrored the primary and secondary types. The primary type had higher Interpersonal and Affective trait scores over Lifestyle scores, and displayed low levels of anxiety. Conversely, the secondary subtype had higher Lifestyle facet scores, compared to the other two facets, and had markedly higher levels of anxiety, impulsivity, externalizing behaviors, and childhood abuse. The third, unanticipated, group had relatively high scores on the

Affective and Lifestyle traits and was particularly fearful, possibly being another subgroup of secondary psychopathy. Of note, the secondary group was rated as having higher motivation for treatment and fewer absences, although the groups were rated similarly for treatment change. Violent recidivism trended towards significantly higher for secondary psychopathy and the secondary type evidenced more institutional misconduct. The findings of Poythress and colleagues were highly consistent with Mealey's (1995a, 1995b) hypothesis that secondary psychopathy would develop in response to poor environmental conditions in early childhood, such as child abuse, resulting in psychopathic behavior characterized by considerably greater anxiety and impulsivity than the primary type.

Recently replication of the primary/secondary subtypes was found in a population-based non-forensic Finnish sample of adult males using the Multidimensional Personality Questionnaire (Drislane et al., 2014). Primary psychopathy was associated with boldness and secondary with impulsivity, anxiety, and internalizing problems. Of note, both groups demonstrated callousness, which the authors concluded was inherent in psychopathy in general. Contrasted with findings in forensic samples, the primary type had significantly more violent offending.

Olver and colleagues (2015) explored the possible etiological, intervention, risk and recidivism implications for psychopathy subtypes in a sample of 314 Canadian adult federal offenders scoring 25 or greater on file based PCL-R ratings. The authors hypothesized that the cluster analysis would result in two clusters reflecting the primary and secondary subtypes. Furthermore, they anticipated that the primary type would demonstrate poorer treatment response due to the greater proportion of Factor 1 traits and their association with poorer treatment progress. Moreover, they expected the secondary type would be of higher risk and need based on proportionately greater antisociality accounted for by Factor 2 leading to higher rates of recidivism upon release.

Olver and colleagues (2015) conducted k-means and model-based cluster analyses on the sample using the four facets of the PCL-R to identify possible subtypes. Based on the integration of extant literature, the results of the k-means analysis were interpreted as representing a two-subtype model labeled primary and secondary. While the primary type scored high on all four facets, the secondary type scored lower on the Interpersonal facet by almost two standard deviations. Moreover, the primary subtype scored significantly higher on the two Factor 1 facets

and the secondary subtype scored significantly higher on the Antisocial facet. The authors noted that although the secondary type was characterized by relatively fewer affective traits, they did demonstrate a high level of callousness and affective indifference. Olver and colleagues suggested that this secondary type would therefore not be best conceptualized as "pseudopsychopathic" because they were characterized by the traits inherent to the psychopathic personality.

The authors then compared the two subtypes on a number of external variables. Olver and colleagues (2015) found a significantly greater proportion of primary variants were White or non-Aboriginal ancestry (74.1%), compared to the secondary subtype that was roughly half Aboriginal. The authors surmised that this coincided with Mealey's (1995a; 1995b) theory that secondary psychopathy is influenced by a disadvantaged environment captured by socioeconomic status and ethnicity. The secondary type had significantly higher static and pretreatment risk, but this difference disappeared when the Antisocial facet of the PCL-R was controlled for. Meanwhile, controlling for the Antisocial facet led to significantly greater treatment change scores for secondary types. Taken together these findings suggested that higher Antisocial facet scores, which are a proxy for risk, might account for greater risk levels for the secondary type, albeit clinically they would present as higher risk-need offenders. Subtype was relevant for treatment progress irrespective of risk level though, with the secondary type benefitting more from the treatment process. Curiously, in a subsample of solely violent offenders the secondary type made greater treatment changes, but treatment changes were found only to be significantly associated with reduced recidivism for the primary subtype after controlling for pretreatment risk level. In other words, although the secondary group made more changes, the fewer changes made by the primary type were more risk relevant. Finally, the authors found that the secondary type had higher rates of recidivism, significantly so for sexual, but these differences did not remain after the Antisocial facet was controlled for. The study supported the two-subtype model and added to the literature by exploring risk, recidivism, and the more novel treatment change, but was at a disadvantage by having no information on anxiety. The analyses that explored treatment change and its relationship to the subtypes were done so solely for violent offenders and thus, it will be important to extend these analyses to sexual offenders.

Taken together, these studies provide support for the existence of two subtypes of psychopathic offenders. The primary subtype is characterized as having higher total PCL-R scores and higher Factor 1 scores. They are also distinguishable by their low levels of anxiety and relatively positive overall adjustment. Secondary psychopathy is characterized as having higher Factor 2 traits and as a result, higher risk for offending. They also have a significant number of Affective traits, but less so than the primary type. In terms of external correlates, the secondary type has poorer overall functioning with higher levels of anxiety, externalizing behaviors, borderline personality traits, etc. Finally, it appears that the secondary type may be more responsive to treatment.

1.6.3 Moving forward: Continuing the investigation of the subtypes of psychopathic offenders.

Summarizing past theoretical implications and results of cluster analyses, it appears that the primary/secondary dichotomy is a legitimate distinction. In fact, Brinkley and colleagues (2004) suggested that the factor and facet structure of the PCL-R itself points to differentiation between those meeting criteria for psychopathy. Meaningful differences between subtypes have been found using the PCL-R facet scores (Hervè, 2003; Mokros, et al., 2015; Olver et al., 2015; Skeem et al., 2007). The primary subtype is consistently characterized by higher scores on both facets in the PCL-R Factor 1 and less anxiety. Secondary psychopathy, on the other hand, displays fewer Factor 1 traits, but does evidence callousness and remorselessness to a lesser degree. Findings have been mixed in terms of secondary scores being higher on the Lifestyle facet (Poythress et al., 2014) or the Antisocial facet (Mokros et al., 2015; Olver et al., 2015) but behavioral correlates of both, such as impulsivity and criminal tendencies have been repeatedly associated with the variant. An important distinguishing factor between the two is high trait anxiety in secondary psychopathy, but absent in primary. Findings also suggest that the secondary type have higher risk levels, accounted for by the Antisocial facet of the PCL-R, and higher rates of recidivism. Moreover, secondary psychopathic offenders may behave more favorable in treatment, although the degree of risk relevant changes is uncertain. To conclude, due to the heterogeneous nature of psychopathy, it is probable that psychopathy subtype may be another important responsivity factor to consider (Skeem et al., 2007). As well, Swogger and Kosson (2007) ascertained that future research should examine the relationship between subtypes and recidivism to further validate the distinctions. Thus, the potential treatment and recidivism

outcomes of the two subtypes of psychopathic offenders, clustered by PCL-R facet scores, requires further investigation.

1.7 Evolutionary Explorations of Psychopathy: Is There Evidence for Adaptation?

In their review of the psychopathy treatment literature, Harris and Rice (2006) maintained at that time that there was no evidence suggesting that psychopathic offenders could benefit from treatment, as measured by reduced recidivism. The researchers proposed that a potential explanation for this lack of treatment effect was that psychopathic offenders are fundamentally different from other offenders. Harris and Rice believed that this difference was reflected through evidence that psychopathic offenders do not have the same deficits that are targeted in treatment for nonpsychopathic offenders. As a result, traditional clinical approaches to treatment will not produce desired results if psychopathic offenders are indeed qualitatively different from nonpsychopathic offenders. Rather alternative approaches focused on limiting their opportunities for recidivism may be more appropriate (Harris & Rice, 2006).

Consistent with the notion that psychopathic offenders differ from nonpsychopathic offenders, researchers have asserted that psychopathy can be conceptualized as a discrete taxon (Harris, Rice, & Quinsey, 1994). That is, a distinct criminal subspecies of human being (i.e., differences in kind), as opposed to a dimensional entity (i.e., differences in degree of psychopathic features). Although the PCL-R is a dimensional measure of psychopathy, Harris and colleagues (1994) suggested that it should be capable of identifying the discreteness of psychopathy if a taxon indeed, existed. While some support exists to suggest that psychopaths are a discrete class (Harris et al., 1994), other examinations, including taxometric analyses of the PCL-R and its variants (Edens, Marcus, Lilienfeld, & Poythress, 2006; Murrie et al., 2007), have not obtained support for this notion (Gullhaugen & Nøttestad, 2012; Polaschek & Daly, 2013). It appears that the majority of researchers view psychopathy or the "psychopath", as someone on the extreme end of the psychopathy continuum, as opposed to a discrete entity (Glenn, Kurzban, & Raine, 2011). Others have further asserted that psychopathy reflects severe Antisocial Personality Disorder (ASPD), rather than a distinct subgroup (Coid & Ulrich, 2010).

Abracen and colleagues (2008) critiqued the previous research claiming that psychopaths are a discrete class, for positing that psychopathic individuals are qualitatively different, yet utilizing samples of offenders who met criteria for psychopathy or Antisocial Personality Disorder (ASPD) more generally. Brinkley and colleagues (2004) further noted that Harris and

colleagues' (1994) taxometric findings more accurately indicated that psychopathy has both taxonic and dimensional aspects and that any taxonicity may be an artifact of the measurement instrument. An important concern associated with assuming the "psychopathy as a taxonomy" viewpoint is that it allows for dehumanization of the individual by considering them different in kind, and encourages reductionist language such as referring to the person as "the psychopath" (Edens, 2006). Overall, it is important to distinguish psychopathic offenders from nonpsychopathic offenders who may meet criteria for ASPD to determine if adaptation is linked to psychopathy specifically. It would seem imperative moving forward to include only those who qualify as psychopathic when exploring the possibility that the path to offending has different origins for the psychopathic versus non-psychopathic offenders; but what are the different pathways?

1.7.1 Two developmental pathways to criminality.

The degree of destructiveness caused by the criminal versatility and violent behaviors displayed by psychopathic offenders appears to be consistent with a development that is pathological or disordered. Certainly, chronic criminality is often construed as disordered (Krupp, Sewall, Lalumière, Sheriff, & Harris, 2013). But if that is the case, what is the evidence for Harris and Rice's (2006) proposition that psychopathic offenders do not have the deficits that nonpsychopathic offenders do? Researchers have been exploring the possibility that psychopathy is one of two pathways (the other being that of competitive disadvantage) that lead to violent behavior across the lifespan. The competitive disadvantage pathway is more indicative of pathology as evidenced by neurodevelopmental insults and obstetrical complications, coupled with a malnourished environment (Harris, Rice, & Lalumière, 2001). Thus, the competitively disadvantaged male is at a disadvantage in competing for limited resources due to factors such as physical unattractiveness, low intelligence, poor social skills, low socio-economic status, etc. (Mealey, 1995b). As a result, they may engage in antisocial and criminal behavior in order to meet their needs that are less likely to be met through prosocial means. The second pathway is theorized to be psychopathy, having evolved via the process of natural selection (Harpending & Sobus, 1987; Harris et al., 2001). This has resulted in the proposed hypothesis of psychopathy being a reproductively viable evolved alternative life history strategy, as opposed the result of a pathological development (Mealey, 1995b; Lalumière, Mishra, & Harris, 2008). A number of markers have been identified as evidence to support this pathway.

The evolutionary hypothesis draws from life history strategy theory, wherein tradeoffs are made to increase fitness and reproductive success, within the constraints of limited resources (Gladden, Sisco, & Figueredo, 2008; Glenn et al., 2011). For males with shorter life expectancies, for example, having many children at a younger age, while investing less effort, would be a more adaptive strategy for optimizing their inclusive fitness. Gladden, Sisco, and Figuerdo described this as a fast life history strategy wherein they "exhibit low parental investment, high mating effort, short-term mating, low group altruism, criminality, and high risk-taking" (p. 320). Consistent with this, it has been further proposed that psychopathic individuals engage in a mating strategy that involves maximizing the quantity of mating opportunities, often through the use of coercion, while offering little to their partners in terms of parental investment (Harris, Rice, Hilton, Lalumière, & Quinsey, 2007). Furthermore, the selfish and callous traits of psychopathy would likely make for a less than ideal long-term mating partner, but rather, they would be better suited to short-term commitment-free sexual encounters (Jonason, Li, Webster, & Schmitt, 2009). From this, sexual coercion could be one avenue adopted to meet their reproductive goals. Glenn and colleagues (2011) emphasized that psychopathy may employ a fast life history strategy that is beneficial only under certain environments and circumstances. Examining the possibility of alternative life history strategies is reliant on the assumption that "there are multiple evolutionarily adaptive strategies and that the optimal strategy for particular individuals will depend both upon their genotype and their local environment" (Mealey, 1995b, p. 527).

Relatedly, cooperation and a willingness to sacrifice selfish drives in favor of the long-term rewards of a positive reputation is necessary for survival in social interactions (Mealey, 1995b). "Cheaters" are those who present a façade of cooperation and then defect in favor of their own selfish gain (Mealey, 1995b). The selfish, manipulative, and callous traits that epitomize psychopathic individuals provide them the tools to engage in a selfish strategy in which they are able to take advantage of others in favor of their own self-interest. Based on Frank's (1988) initial proposition that in order to be a successful cheater, one must be adept at mimicking certain emotions (e.g. remorse) that advertise one's trustworthiness, Book and colleagues (2015) indeed found evidence that Factor 1 traits are associated with a greater ability to convincingly feign remorse and fear, thus increasing their apparent trustworthiness. It has been theorized that due to the frequency dependent nature of psychopathy, making up only one

percent of the general population (Hare, 1993, 2003), psychopathic offenders are able to benefit from defecting in a population that is mainly composed of trusting and cooperative people (Lalumière et al., 2008; Mealey, 1995b). Psychopathic traits could potentially then have numerous fitness benefits, including the ability to gain resources and access to mates, capitalize on opportunities presented, resilience to stress and anxiety, etc. (Glenn et al., 2011). Indeed, the idea that psychopathy may have some adaptive or redeeming qualities is also more consistent with the earliest conceptualizations of psychopathy (Polaschek & Daly, 2013). Cleckley (1941) had described the benefits afforded to the psychopathic individual including absence of anxiety, psychosis, or suicidal ideation, with a charismatic interpersonal style. Although our current view of psychopathy has become more focused on the harmful aspects of the psychopathic traits, the pioneers in this field recognized the strengths that were afforded to these individuals.

It is possible that primary and secondary psychopathy also mirror the two pathways to antisociality. Even in the earliest discussions of primary and secondary psychopathy, primary types were noted to 'look out for number one', so to speak, by parasitically taking all they needed from others without any intention or urge for reciprocity (Karpman, 1946). Since then, researchers have postulated that primary psychopathy is derived from heritable genetic factors, aligned with the evolved alternative life history strategy, whereas secondary psychopathy has low heritability but is much more heavily influenced by environment, particularly of a disadvantaged nature (Mealey, 1995b; Mokros et al., 2015; Olver at al., 2015). Primary psychopathy has been associated with lower prevalence of mental disorders than both secondary psychopathy and control groups, further supporting the notion that genetically based primary psychopathy is inversely related to competitive disadvantage (Skeem et al., 2007).

1.7.2 Evidence supporting adaptation in psychopathy.

In terms of evidence supporting the adaptationist hypotheses, psychopathic offenders in general have been found to display traits and behaviors that are inconsistent with offenders who have experienced neurodevelopmental insults or severe mental disorders, proxies of disadvantage (Harris et al., 2001; Lalumière, Harris, & Rice, 2001; Lalumière et al., 2008). For example, offenders who scored higher on the PCL-R displayed fewer anatomical traits consistent with developmental complications or neurodevelopmental insults, such as fluctuating asymmetry, than controls and nonpsychopathic offenders (Lalumière et al., 2001). This was

suggested to be evidence that psychopathy and brain damage reflect different etiologies leading to the same outcome: violent and antisocial behavior (Harris et al., 2001).

Moreover, if psychopathy has indeed served an adaptive function in terms of evolution, Krupp, Sewall, Lalumière, Sheriff, and Harris (2012) proposed that psychopathic offenders would be less likely than mentally disordered offenders to harm relatives, thus sparing shared genes to benefit their "selfish genes" in a reproductive sense. Indeed, Krupp and colleagues found psychopathic offenders to display nepotistic behavior by being significantly less likely than nonpsychopathic offenders to commit a violent offense against a kin member. Additionally, violent offending against relatives was related to psychiatric illness (Daly & Wilson, 1988), which again, is hypothesized to be a different etiology for violence than psychopathy. In addition to acting selfishly, researchers have proposed that psychopathic offenders may engage in what is known as a *spiteful strategy* (Krupp et al., 2012). This involves the individual incurring a cost while also inflicting a cost on another. The authors note that this strategy is successful when negative relatives are targeted, which are those individuals who genes rival ones own. Thus, the fitness benefit occurs at the genetic level where genes of the individual are more likely to be passed on to remaining generations because their rivals have been eliminated (Krupp et al., 2012). For instance, evidence of this strategy could be a propensity for offending violently against males of a different race or ethnicity, as skin color is a readily available cue of relatedness. Of course, this is not to deny that psychopathic individuals likely make for poor relatives, but it may suggest that they make even worse nonrelatives (Krupp et al., 2013).

If psychopathy is also indicative of a fast life history strategy, certain traits and behaviors indicative of reproductively adaptive behaviors and increased fitness should also be observable in offenders displaying a high proportion of psychopathic traits. If this hypothesis is accurate, psychopathic offenders should have a greater number of offspring if their high mating strategy is successful. Additionally, they should engage in short-term mating opportunities and display the use of deception and coercion when seeking sexual interactions. The precocious high mating strategy of psychopathic offenders should also include a younger age at first sexual offense (Harris et al., 2007). Evidence supporting the fast mating strategy was found in a community sample wherein psychopathy was significantly correlated with an earlier age of initiation of sexual intercourse, greater number of one night stands, and lower likelihood of discussing contraceptives with their partner (Seto, Khattar, Lalumière, & Quinsey, 1997). Seto and

colleagues also found that psychopathy was associated with a general propensity for the use of deception, which extended to using deception in sexual encounters. In another community sample, psychopathy was associated with more casual sexual attitudes and behaviors, more partners, and a preference for short-term mating in males (Jonason et al., 2009). Further, Camilleri (2009) found that indeed, psychopathic offenders were less likely to display violent behavior against their partners; however, they were more likely to use coercion.

If psychopathic men are engaging in a reproductively viable strategy indicative of forcefully or manipulatively, gaining access to a high number of partners, this strategy would not be effective if they were not targeting mating partners of a reproductively viable age. Thus, psychopathic offenders should be more likely to sexually offend against female victims that are reproductively viable, rather than targeting children (Lalumière et al., 2008). Indeed, it has been found that although psychopathic offenders did not have a higher number of sexual offense victims, they were significantly more likely to offend against nonrelatives than nonpsychopathic offenders (Harris et al., 2007). Additionally, rapists tended to score significantly higher on measures of psychopathy than did child molesters, indicating victims of a predominantly reproductively viable age (Olver & Wong, 2006; Porter et al., 2000; Seto & Barbaree, 1999). Interestingly, however, mixed offenders, those who offended against children and adults, had the highest amount of psychopathic traits (Olver & Wong, 2006; Porter et al., 2000). It may be that offending against children and adults, is more reflective of the impulsive, selfish, and pleasure seeking nature of psychopathy. As such, a convincing measure of the evolved sexual preferences of psychopathic offenders should be evident in the type of victim that they offend against most frequently. It would also stand to reason that the results from phallometric testing would confirm the sexual preferences of psychopathic offenders in line with such an evolutionary hypothesis. Indeed, a significant negative correlation between phallometric responses of psychopathic offenders to children was found (Harris et al., 2007). In one study, however, a correlation was found between arousal to children and PCL-R scores in extrafamilial child molesters (Serin, Malcom, Khanna, & Barbaree, 1994). Thus, psychopathic child molesters are potentially more likely to offend sexually against nonrelatives, again, aligned with what would be expected from an evolutionary perspective.

1.7.3 Moving forward: Continuing the investigation of adaptation in psychopathic offenders.

In sum, it is undeniable that psychopathy is harmful to others, but it is unclear if it results from dysfunction or adaptation (Krupp et al., 2013). If psychopathy has adopted a fast life history strategy and is the result of adaptation, then psychopathic sexual offenders should have more sexual victims that are unrelated females of a reproductively viable age and if they are successful, more biological children. Furthermore, if they have adopted a spiteful strategy, they should preferentially target nonrelatives for violent offenses, as indicated by cues such as ethnicity. As well, it will be important to determine if the two pathways, competitive disadvantage versus life history, distinguish the psychopathic from the nonpsychopathic or the primary psychopathic from secondary psychopathic. It is important to clarify the etiological pathways because treatment can subsequently be tailored accordingly (Brinkley et al., 2004, Harris & Rice, 2006). Etiology may in a sense, be another responsivity consideration.

1.8 Purpose of the Present Program of Research

The current state of the violence reduction literature remains inconclusive as to whether or not psychopathic offenders can make meaningful treatment gains that translate into reduced rates of recidivism once released from custody. Furthermore, it has been proposed that psychopathy has served an evolutionarily adaptive purpose and that this may explain results suggesting that psychopathic offenders do not benefit from treatment (Harris & Rice, 2006). The existing evidence to support this evolutionary hypothesis is conflicting and must be further empirically examined in order to determine if it is a viable hypothesis. Finally, it is possible that there are different subtypes of psychopathic sexual offenders and they may differentially respond to treatment or display traits indicative of an evolved life strategy. These potential differences have yet to be thoroughly investigated in the subtype literature.

The present program of research involved three phases of an archival investigation. The first phase was designed to examine the relationship of psychopathy, baseline risk, and treatment change to recidivism in sexual offenders. In particular, the question of whether or not quantitatively measured treatment changes displayed by psychopathic sexual offenders translated into reduced rates of recidivism was explored. The second phase was an exploratory investigation of potential subtypes of psychopathic offenders. Furthermore, the relationship between treatment effects and recidivism of potential subtypes of psychopathic offenders was

investigated. The third phase explored evolutionary hypotheses about psychopathic offenders. Specifically, the psychopathic offenders were examined to determine if they displayed traits and behaviors that were more consistent with an evolved life strategy, as compared to nonpsychopathic offenders. Again, those evolutionary hypotheses were tested against the subtypes resulting from cluster analysis to examine the possibility of one subtype being more indicative of an alternate life history strategy than another.

1.9 Hypotheses

1.9.1 Phase one: Treatment and psychopathy.

The first phase of the present program of research intended to examine the following research questions: Are psychopathic offenders able to demonstrate quantifiable gains from treatment? Are quantified treatment changes made by psychopathic offenders related to reductions in recidivism? The following hypotheses were proposed:

1. The PCL-R total, factor, and facet scores, the VRAG, SORAG, and VRAG-R will each significantly predict sexual and violent recidivism.
2. Psychopathic offenders will have faster and higher rates of sexual and violent recidivism over the follow-up period than nonpsychopathic offenders.
3. The majority of offenders will complete treatment; however, psychopathic offenders will have higher rates of treatment dropout compared to nonpsychopathic offenders. Psychopathic treatment dropouts will demonstrate the highest rates of sexual and violent recidivism.
4. Offenders who score highest on static risk measures will recidivate at the highest rates, both sexually and violently, regardless of PCL-R score; however, high PCL-R and high risk offenders will recidivate at the highest rate, while low PCL-R and low risk offenders will recidivate at the lowest.
5. The majority of offenders will demonstrate treatment gains, but psychopathic offenders will demonstrate less treatment gains than nonpsychopathic offenders, indicated by lower VRS-SO change scores.
6. VRS-SO change scores will be associated with reductions in sexual and violent recidivism after controlling for the PCL-R and a measure of baseline pre-treatment risk (i.e., VRS-SO pre-treatment total, and VRAG, SORAG, and VRAG-R).
7. Offenders who score high on the PCL-R, but make treatment gains will recidivate at a lower rate than those high PCL-R scorers who have low treatment change. Specifically, offenders

with high PCL-R scores and low VRS-SO treatment change scores will recidivate at the highest rate, while offenders with low PCL-R scores and high VRS-SO treatment change scores will recidivate at the lowest rate.

8. The predictive accuracy of the static/stable risk measures, the PCL-R, VRAG, SORAG, and VRAG-R will decrease for offenders who have made significant therapeutic gains.

1.9.2 Phase two: Subtypes of psychopathy.

The second phase of the present program of research examined the following research questions: Do quantitatively different subtypes of psychopathic offenders exist and does the relationship between treatment changes and recidivism differ between them? The following hypotheses were proposed:

1. It is anticipated that two subtypes of psychopathic offenders will emerge mirroring the primary and secondary types, based on extant findings.
2. Exploratory results will be interpreted for the potential subtypes of psychopathic offenders on rates of treatment completion, length of time in treatment, therapeutic change, and rates of sexual and violent recidivism.

1.9.3 Phase three: Adaptation and psychopathy.

The third phase of the present program of research examined the following research questions: Do psychopathic offenders display traits and behaviors that are consistent with an evolved viable alternative life history strategy? Are there different subtypes of psychopathic offenders that represent adaptive and evolved traits and behavior to differing degrees? The following hypotheses were proposed:

1. Psychopathic offenders will be less likely to have a diagnosis of a severe mental disorder or other indications of neurodevelopmental insults compared to nonpsychopathic offenders, consistent with the life history theory.
2. If psychopathic sexual offenders are engaging in a reproductively viable strategy intent on maximizing their fitness benefit, they will be less likely than nonpsychopathic offenders to sexually offend against relatives, but more likely to have a greater number of sexual offenses against female victims of a reproductively viable age, and be charged with a sexual offense at a younger age. Psychopathic sexual offenders should also have a greater number of offspring if their strategy is successful.

3. If violent psychopathic offenders are displaying evolved selfish and spiteful behaviors by preferentially targeting nonshared genes, they will be less likely than nonpsychopathic offenders to violently offend against relatives, and more likely to have victims of a different ethnicity.
4. It is hypothesized that psychopathic offenders will display behaviors in treatment that are consistent with their evolved life history strategy. Thus, they may be more likely to have a higher number of boundary violating incidents with female staff and display predatory aggressive behavior towards other males while incarcerated compared to nonpsychopathic offenders.
5. Offenders with a "life history profile" (created by selected scores on the victim variables in hypotheses 2 and 3) will demonstrate lower treatment completion and change, than offenders without such a profile.

Chapter 2. METHOD

The proposed research took place at the Regional Psychiatric Centre (RPC), a multilevel-security forensic mental health facility in Saskatoon, Saskatchewan, Canada.

2.1 Participants

The participants in the study were a preselected sample from a previous study (Olver, Wong, Nicholaichuk, & Gordon, 2007). The sample included 302 of the 321 federally incarcerated sexual offenders who participated in a high intensity sexual offender treatment program, the Clearwater Sex Offender Program at the RPC between 1983 and 1997. (Nineteen of the files were unobtainable, possibly due to being pardoned or unavailable because they had been moved offsite). The duration of the treatment program was between six to eight months and was based on cognitive behavioral therapy and relapse prevention strategies as described in by Nicholaichuk, Gordon, Gu, and Wong (2000). Of note, the program adhered to the tenets of the RNR model and program staff was well versed in it. For example, the high intensity program mostly treated moderate- to high-risk offenders (risk principle), addressed criminogenic needs such as attitudes, interpersonal relationships, education and work skills (need principle), and responded to individual characteristics of the offenders including personality, culture, motivation, etc. (specific responsivity principle; Olver, Wong, & Nicholaichuck, 2009). Research has previously found that sexual offenders treated in the Clearwater Program have had 25-50% lower rates of sexual recidivism compared to untreated matched controls, supporting the impact of the program (Nicholaichuk et al., 2000; Olver et al., 2009). All offenders in the present sample were convicted of a sexual offense either as their current index offense for which they were in custody for, or had previously been charged or convicted of a sexual offense. Estimated release dates ranged from 1984 to 1998, allowing for an estimated average post-release follow-up period of 18 years.

The sample consisted of rapists, mixed offenders, child molesters, and incest offenders based on their entire offense history. Similar to Olver and colleagues (2007) sample, in the current sample, rapists were defined as offenders who had victims that were post-pubertal, or age 14 or older. Child molesters were defined as offenders who had victims of pre-pubertal age, or under the age of 14. Mixed offenders were defined as perpetrators who had both adult and child victims. Finally, for the sake of testing the evolutionarily relevant hypotheses, where biological

relatedness is of interest, incest offenders were classified by those with victims of biological relations.

2.2 Characteristics of the overall sample.

General demographic, mental health, offense and victim characteristics, and treatment related information is summarized in table 2.1. The sample's mean age at admission for the treatment program was 33 (*SD*= 9.6) and the mean age at discharge was 35 (*SD*= 9.6). The ethnic majority of the sample were Caucasian at 63%, followed by 35% Aboriginal, and the remaining 2% consisting of other ethnicities (e.g., Asian and African Canadian). Approximately 30% of the sample had never been married, while 26% were divorced or separated, 42% currently married or common-law, and 1% were widowed. The mean number of biological children for the sample was 1.5 (*SD*=1.9). Roughly 5% of the sample had never held gainful employment, 28% were frequently unemployed (less than six months per year), 30% were employed for less than one year at the time of program admission and 37% were regularly employed (greater than two years). Finally, the mean years of education for the sample were 9.6 (*SD*= 2.8).

Thirty-two percent of the sample had been diagnosed with an Axis I disorder, (all diagnoses were based on criteria outlined in the DSM-III (American Psychiatric Association, 1980) or DSM-III-R (American Psychiatric Association, 1987), whereas 75% were diagnosed with an Axis II disorder. Approximately 49% of the sample had a current substance use disorder at the time of the treatment program. Further, roughly 56% had a diagnosis of Antisocial Personality Disorder. Twenty-four percent of the sample had also been diagnosed with a paraphilia, such as pedophilia.

In relation to criminal history, the average age of the sample for first sexual offense conviction was 26 (*SD*= 8.9). The mean total number of sexual offense victims for the sample was 2.8 (*SD*= 2.5). The mean sentence length for the index offense was 5.7 (*SD*= 3.8) years. The sexual offender types for the sample were classified as follows; approximately 55% were rapist, 18% child molesters, 19% mixed offenders, and 9% of the sample was incest offenders. The mean number of index sexual offense victims for the sample was 1.8 (*SD*= 1.8). Moreover, the mean number of male sexual victims was .6 (*SD*= 1.8) and female victims were 2.2 (*SD*= 2.1). The mean number of unrelated sexual offense victims was 2.4 (*SD*= 2.5) while the mean number of related sexual victims was .4 (*SD*= .9). Finally, the mean number of sexual victims over the age of 14 was 1.4 (*SD*= 1.5) and for victims under the age of 14 was 1.3 (*SD*= 2.5).

Regarding treatment relevant variables, the mean treatment length for the sample was 8.0 (*SD*= 2.9) months. Approximately 88% of the sample successfully completed the Clearwater Sex Offender Treatment program, while 12% failed to complete the program. Treatment completion status was noted in progress reports on file. Participants were scored as failing to complete treatment if they did not attend the program in its entirety. An offender may have failed to successfully complete treatment for a variety of reasons including lack of engagement, disruptive behaviors, early release due to completing their sentence, transfer to another institution, etc.

Table 2.1

Demographic Information for the Overall Sample

Measure	Mean (SD)	Frequency (%)
Demographics		
Age at program admission	33 (9.6)	-
Age at program discharge	35 (9.6)	-
Aboriginal descent	-	35
Single/never married	-	30
Number of biological children	1.5 (1.9)	-
Unemployed	-	33
Education	9.6 (2.8)	-
Mental Health (DSM-III)		
Axis I diagnosis	-	32
Axis II diagnosis	-	75
Current substance use disorder	-	49
Antisocial personality disorder	-	56
Paraphilia	-	24
Criminal History		
Age at first sexual offense	26 (8.9)	-
Total sexual offense victims	2.8 (2.5)	-
Offense Related		
Sentence length (years)	5.7 (3.8)	-
Rapist	-	55
Child Molester	-	18
Mixed	-	19
Incest	-	9
Victim Characteristics		
Index victim total	1.8 (1.8)	-
Male sexual victims	.6 (1.8)	-
Female sexual victims	2.2 (2.1)	-
Unrelated sexual victims	2.4 (2.5)	-

Related sexual victims	.4 (.9)	-
Victims age > 14	1.4 (1.5)	-
Victims age < 14	1.3 (2.5)	-
Treatment Related		
Treatment length (months)	8.0 (2.9)	-
Successfully completed	-	88%
Unsuccessfully completed	-	22%

2.3 Materials

Demographic and treatment information for each participant were retrieved from treatment files where historical and treatment progress information was used to rate psychopathy via the Psychopathy Checklist-Revised (PCL-R; Hare, 1991, 2003) and risk for violence and sexual recidivism via The Violence Risk Appraisal Guide (VRAG; Harris et al., 1993; Quinsey et al., 1998; 2006), the Sex Offender Risk Appraisal Guide (SORAG; Quinsey et al., 1998), and The Violence Risk Appraisal Guide-Revised (VRAG-R; Rice et al., 2013). The Violence Risk Scale- Sexual Offender Version (VRS-SO; Wong et al., 2003) was rated in a previous investigation (see Olver et al., 2007). Recidivism information was gathered from the Canadian Police Information Centre (CPIC).

2.3.1 PCL-R.

See Appendix A. (Hare, 1991, 2003). The PCL-R is a clinician applied standardized rating scale designed to identify criminal psychopaths, mainly utilized in forensic settings. The PCL-R consists of 20 items, scored on a 3-point scale (0 to 2), which provides a possible total score ranging from 0 to 40. Typically, scores above 30 are considered indicative of psychopathy; however, research has found that when applying the PCL-R to file reviews for research purposes using a cut-off score of 25 is appropriate, given that the interpersonal and affective characteristics tend to be underrated (Wong, 1988). The PCL-R scores can also be interpreted as dimensional (Hare & Neumann, 2006). The PCL-R contains two oblique factors (Hare, 1991). Factor 1 is composed of the Interpersonal/Affective items, whereas Factor 2 is composed of Social Deviance items. The two factors can be broken down further into four facet scores as follows: Facet 1 Interpersonal (e.g., deceitfulness, grandiosity), Facet 2 Affective (e.g., callous,

shallow affect), Facet 3 Lifestyle (e.g., impulsivity, irresponsibility), and Facet 4 Antisocial (e.g., early behavior problems, criminal versatility) (Hare, 2003).

2.3.2 VRS-SO.

See Appendix B. The VRS-SO (Wong et al., 2003) is a rating measure that provides assessment of risk of sexual offending following participation in a forensic treatment program. The VRS-SO incorporates dynamic risk factors in an effort to capture treatment change. It is rated pre-treatment to identify risk category, treatment targets, and motivation for treatment and then rerated post-treatment to quantitatively measure treatment change and risk level following treatment. There are seven items pertaining to static factors and 17 dynamic items, which can be impacted by gains made during treatment. Each dynamic item is given a rating from 0 to 3, with higher ratings (2 or 3) indicating a criminogenic need and treatment targets. The dynamic items can be divided into three factors: Sexual Deviance, Criminality, and Treatment Responsivity. Total VRS-SO scores, including the static and dynamic items, result with four risk categories: Low (0-20), Moderate-Low (21-30), Moderate-High (31-40), and High (41-72).

Treatment change is captured on the VRS-SO by quantitatively applying an adapted version of the Transtheoretical Model of Change (TM; Prochaska, DeClemente, & Norcross, 1992) to items identified as treatment targets (i.e. dynamic items receiving a score of 2 or 3) at pre-treatment. The TM states that individuals attempting to change problem behaviors progress through a series of stages, each reflecting greater improvement and stability of treatment gains. The first stage is the precontemplation stage, where the individual is in denial or unaware of their problem and thus, is unmotivated to engage in treatment. The contemplation stage reflects an awareness of the problem, but no attempts are made to modify behavior. The preparation stage involves again, recognition of the problem, and preliminary use of skills and strategies to improve behavior; however, improvements are relatively recent in duration and/or are inconsistent. The action stage reflects modification to problem behaviors that are consistent across an extended period of time and are relatively stable, but have yet to be applied to high-risk situations. Finally, the maintenance stage involves the consistent and stable demonstration of the use of treatment gains to avoid returning to problematic behaviors including in high-risk situations. Progression through the stages indicates improvement in treatment targets, and thus, post-treatment risk ratings on the VRS-SO are decreased following demonstration of progression through the TM. The score for each dynamic item is decreased by .5 for every stage of change

that the individual has progressed through, save for the progression of precontemplation to contemplation because behavior change has yet to be displayed. The post-treatment VRS-SO risk scores are recalculated following the relevant point reductions, allowing for a quantified assessment of gains made in treatment.

2.3.3 VRAG, SORAG, VRAG-R.

See Appendix C. The VRAG (Harris et al., 1993; Quinsey et al., 1998; 2006) is a 12-item static actuarial risk assessment tool that provides the probability of a violent offender being charged with at least one violent offense within 10 years following release from custody. The items include historical information such as elementary school maladjustment, marital status, age at index offense, and PCL-R score. Each item is added or subtracted from the total based on whether it is positively or negatively correlated with recidivism, providing total scores that range from -26 to 38. Total scores on the VRAG are divided into 9 risk categories (category 1 being the lowest risk and category 9 the highest), with corresponding probabilities.

The VRAG was modified to produce the SORAG (Quinsey et al., 1998; 2006), a 14-item static actuarial tool to assess risk for future violence (including sexual offenses) among sexual offenders. Many of the historical items overlap with the VRAG, with additional sexual offense related variables including number of convictions for previous sexual offenses prior to index, history of sexual offenses against girls under age 14 only including index, and phallometric test results. The total scores can range from -27 to 51 and are divided into 9 risk categories (category 1 being the lowest risk and category 9 the highest), with corresponding probabilities.

The VRAG-R (Rice et al., 2013) was developed to combine the VRAG and SORAG into one streamlined, less cumbersome measure. It was scored similarly to the VRAG and SORAG and consisted of historical items including: lived with biological parents until age 16, nonviolent and violent criminal history, number of prior admissions to correctional institutions, and PCL-R Antisocial facet score. Total scores can range from -34 to 46 and are divided into 9 risk categories similar to its predecessors.

2.3.4 Data Collection Protocol.

See Appendix D. The Data Collection Protocol has been created to gather demographic information pertaining to each participant, as well as information specific to the study hypotheses. Additional items on the Data Collection Protocol pertained to prior offenses, victim characteristics, and institutional and psychiatric information.

Recidivism was operationally defined as any new conviction following release from custody. New sexual, violent (including sexual), and general (any) offenses were coded as binary (present-absent) variables. Sexual offenses were defined as any offenses that were clearly sexually motivated or sexual in nature (e.g., sexual assault, sexual interference). Violent offenses were defined as any offenses against a person (e.g., assault, robbery), including sexual offenses. Finally, offenses that were neither violent, nor sexual in nature were deemed nonviolent offenses (e.g., possession of stolen property, break and enter).

Variables relevant to evolutionary hypotheses were also collected based on the information available in the treatment files. Evidence for neurodevelopmental insults was captured by diagnosis of a severe mental illness and cognitive functioning. Sexual offence victim characteristics, such as gender, age, and relatedness were scored in order to examine proxies for adaptive mating strategies. Further information pertaining to evolutionary hypotheses were unavailable in the treatment files and thus, were not included in the data collection protocol.

2.4 Procedure

The entire sample of 302 offenders was rated on all of the measures (Data Collection Protocol, PCL-R, VRAG, SORAG, and VRAG-R) based on file information extracted by a research assistant. The cases were sorted so that information pertaining solely to the Clearwater Program and prior admissions was available to complete the data collection protocol and measures, while any information regarding future admissions was removed by a research assistant and the main rater was kept blind to it. The student investigator completed the majority of the ratings along with trained research assistants. In order to establish inter-rater reliability, approximately 35 cases (11.5% of the total sample) were randomly selected and coded by two raters. The PCL-R was rated on participants via comprehensive institutional file information. Complete PCL-R ratings had been made on this sample from a previous study (Olver & Wong, 2006) for 116 offenders, so PCL-R ratings were completed on the remaining 183 cases. Risk and treatment change were measured using the VRS-SO (ratings completed from Olver et al., 2007) in order to examine the relationship of psychopathy and therapeutic change to various recidivism outcomes. Finally, information regarding convictions was obtained via the Canadian Police Information Centre (CPIC) database. These outcome data were recently updated for a separate VRS-SO norms project (which involved combining VRS-SO scores from Olver et al., (2007) with a treated New Zealand sample from Beggs and Grace (2011)) for a total of roughly 18-years

follow-up and were used in the present program of research. The study raters were kept blind to the VRS-SO scores (including treatment change) and recidivism information until after all measures were rated to avoid cross-contamination.

Cluster analysis was also applied to the sample using the four PCL-R facet scores. Exploratory comparisons of the potential subtypes were completed on risk ratings, treatment change, and recidivism data as outlined below (see Phase 2). The same sample as described above was included in Phase 3, with PCL-R ratings employed to explore evolutionarily relevant variables. Key variables of interest to examine study hypotheses included specific demographic variables (age, cognitive functioning, diagnosis of severe mental disorder (i.e., Axis I disorders excluding paraphilias or substance-related disorders), number of biological children) and sexual offending variables (age at first sexual offense, number of offspring, age of victim, relationship to victim, number of sexual offenses, and use of coercion), although information was not consistently available for all variables. Information regarding sexual incidents and violent offenses while incarcerated, as well as demographic information about victims of violent offences (ethnicity, relatedness) were not present in the treatment files and thus, corresponding hypotheses could not be tested. The subtypes resulting from the cluster analysis in Phase 2 underwent exploratory analyses of the previously mentioned variables as well, to determine if a certain subtype was more indicative of adaptation.

2.5 Data Preparation

The following initial statistics were conducted to the entire data set in preparation for the main planned statistical analyses (described below):

- Descriptive statistics were conducted on primary study measures.
- Inter-rater reliability was evaluated for the PCL-R, VRAG, SORAG, and VRAG-R using 35 cases coded by two raters using the intraclass correlation coefficients (ICCs) to ensure that the data collected met acceptable reliability.
- Comparisons were made between psychopathic and nonpsychopathic offenders such as demographic and historical variables.

2.6 Data Analytic Plan

2.6.1 Phase one analyses:

1. The area under the curve (AUC) statistic in the receiver operating characteristic (ROC) analysis was used to investigate the relationships of the PCL-R (total score, two factors, and four facets), VRAG, SORAG, and VRAG-R with sexual, violent, and general recidivism.
2. The psychopathic and nonpsychopathic offenders were separated into two different groups and Kaplan-Meier survival analysis were performed to determine the relative cumulative sexual and violent recidivism rates of both types of offenders over the follow up period.
3. To investigate the relationship of psychopathy and treatment dropout to sexual and violent recidivism, chi-square and Kaplan-Meier survival analyses were applied to the following four groups: nonpsychopathic completers, nonpsychopathic dropouts, psychopathic completers, and psychopathic dropouts.
4. To examine the relationships of psychopathy, sexual offending risk, and recidivism, the offenders were divided into the following groups as a function of VRS-SO risk score and PCL-R total score: low psychopathy/low risk, low psychopathy/high risk, high psychopathy/low risk, and high psychopathy/high risk. Kaplan-Meier survival analyses were conducted to the four groups.
5. The relationship of psychopathy to therapeutic change was examined through correlating PCL-R (total, factor, and facet) scores with the VRS-SO change scores.
6. Cox regression survival analyses were completed to investigate the relative contributions of the PCL-R, VRS-SO pretreatment risk, and change score for predicting sexual and violent recidivism. This procedure was repeated adding the VRAG, SORAG, and VRAG-R to the Cox regression analyses.
7. Four psychopathy-change groups were computed and their rates of sexual and violent recidivism were examined through Kaplan-Meier survival analysis. The groups were: high psychopathy/high change, high psychopathy/low change, low psychopathy/high change, and low psychopathy/low change.
8. The predictive accuracy (r_{pb}, AUC) of the PCL-R, VRAG, SORAG, and VRAG-R were examined among sexual offender groups that made different amounts of change to see if the predictive accuracy of those static tools eroded among offenders who made significant therapeutic gains, and thus for whom their risk should have been lowered.

2.6.2 Phase two analyses:

1. Exploratory Cluster analysis (hierarchical and k-means) was conducted on those offenders who met criteria for psychopathy (using cut-off scores of 25) to determine potential subtypes of psychopathic offenders to undergo further comparisons.
2. Psychopathic offender subtypes were compared on: 1) rates of treatment completion; 2) length of time in treatment; 3) amount of therapeutic change as measured by the VRS-SO 4) risk measures; 5) additional offender characteristics. Failure rates of psychopathic offender subtypes for sexual and violent recidivism were also examined through Kaplan-Meier survival analyses.

2.6.3 Phase three analyses:

1. Chi-square was conducted to compare psychopathic versus nonpsychopathic offenders on available indicators of neurodevelopmental insults (i.e., diagnosis of Axis I disorder, below average cognitive functioning).
2. To investigate the extent to which psychopathic offenders engaged in a reproductively viable strategy, psychopathic and nonpsychopathic offenders were compared, via chi-square or *t*-test, on the following variables related to sexual offenses: relatedness of victims, percentage of victims of a reproductively viable age, and age at first sexual offense. Dimensional PCL-R scores were also correlated with continuous victim variables.
3. To determine if psychopathic offenders were demonstrating a selfish and spiteful strategy, it was proposed that the following violent offense variables would be compared between psychopathic and nonpsychopathic offenders: victim relatedness and victim ethnicity. Information pertaining to those variables, however, was unavailable on file.
4. A "life history profile" (LHP) score was created with pertinent evolutionary variables. The LHP score was correlated with the factors and facets of the PCL-R and with treatment relevant variables. Further, *t*-tests were conducted to compare psychopathic versus nonpsychopathic and the psychopathy subtypes on LHP scores. Finally, the predictive validity of the LHP score was assessed via AUCs.

Chapter 3. RESULTS

3.1 Base Rates of Recidivism

It is important to note that recidivism was measured by official reconvictions, which is likely a conservative estimate due to the large proportion of offenses that go unreported or without conviction (Harris & Hanson, 2004). Any reference made to recidivism for the study will be referring to official reconvictions. The overall sample consisted of 321 offenders, however, treatment files were unobtainable for 25 offenders (possibly due to official pardons) and thus, the measures were rated on 296 offenders. Further, seven cases had previous rating on the PCL-R and VRAG, thus those two measures were rated on 302 offenders. VRS-SO ratings and recidivism information had been collected previously for all 321 offenders.

Recidivism information was gathered based on the time the offender was released from custody following discharge from treatment. As displayed in table 3.1, the mean follow-up time for the overall sample was 17.7 (*SD*= 4.3) years. The mean time to new sexual conviction was 13.8 (*SD*= 7.1) years, with approximately 29% of the sample sexually recidivating. The rate of violent (including sexual) recidivism was 55% with the mean time to new violent conviction being 10.5 (*SD*=7.4) years. Finally, the mean time to any new conviction was 7.1 (*SD*= 7.0) years, with approximately 72% of the sample being reconvicted of any new offense during that time.

Table 3.1

Follow-Up Time (Years) to Reconvictions

Temporal criterion	Mean (SD)
Follow-Up Time	17.7 (4.3)
Time to New Sexual Conviction	13.8 (7.1)
Time to New Violent (incl. Sexual) Conviction	10.5 (7.4)
Time to Any New Conviction	7.1 (7.0)

3.2 Descriptive Statistics

Table 3.2 presents the means and standard deviations for the risk measures and clinical scales. The means and standard deviations for the PCL-R total score, along with the two factor and four facets that it encompasses are included. The means and standard deviations for VRS-SO (static, dynamic, total, change), VRAG, SORAG, and VRAG-R are also included. The mean PCL-R clinical scale score falls below the 25-point threshold for psychopathy, but is indicative of a moderate to high level of psychopathic traits in the sample as a whole. The VRAG, SORAG, and VRAG-R mean scores for the sample fell within the 'medium' to 'medium-high' risk range. The mean VRS-SO static score for the sample was indicative of moderate to high risk. The VRS-SO pre and posttreatment scores broadly fell within the moderate-high risk range, although some risk change was evident from pre to posttreatment. Specifically, the VRS-SO Change scale score denoted that on average, the sample made approximately one third of a standard deviation of change in treatment. Overall, these results suggest that the sample displayed moderate but subthreshold psychopathic traits. Further, the overall static risk of the sample was generally in the moderate to high-risk range, congruent with the population that the Clearwater Sexual Offender program was historically mandated to treat. Finally, the VRS-SO change score, and the VRS-SO Total Posttreamtent scale score showed that the overall sample demonstrated positive risk reduction treatment gains.

Applying the 25-poing cut-off score, 87 participants (28.8%) were classified as psychopathic and 215 were classified as nonpsychopathic. In terms of sexual offender type based on psychopathy, the lowest percentage of psychopathy was for child molesters (18.9%), the highest were rapist (34.6%) followed by mixed (30.9%) and incest (29.4%) offenders. In terms of differences between the psychopathic and nonpsychopathic offenders on a selection of

historical and demographic variables (see Table 3.3), psychopathic offenders were significantly younger at the time of their index offense, treatment admission, and release. A greater proportion of psychopathic offenders were of Aboriginal descent and had higher rates of unemployment compared to nonpsychopathic offenders.

Table 3.2

Risk Measures and Clinical Scales: Means and Standard Deviations

Measure	Mean (SD)
PCL-R Total	20.2 (7.7)
PCL-R Factor 1	6.9 (3.7)
PCL-R Factor 2	11.0 (5.1)
PCL-R Interpersonal	2.3 (1.9)
PCL-R Affective	4.5 (2.2)
PCL-R Lifestyle	5.5 (2.7)
PCL-R Antisocial	5.4 (2.9)
VRS-SO Static	10.0 (4.0)
VRS-SO Dynamic Pre	24.9 (7.5)
VRS-SO Dynamic Post	22.4 (7.4)
VRS-SO Total Pre	34.9 (10.0)
VRS-SO Total Post	32.4 (9.9)
VRS-SO Change	2.6 (2.1)
VRAG Total	10.5 (10.2)
SORAG Total	18.1 (12.0)
VRAG-R Total	16.8 (18.6)

Table 3.3

Psychopathic and Nonpsychopathic Comparisons on Demographic and Historical Variables

Measure	Psychopathic		Nonpsychopathic		t or χ^2
	M (SD)	%	M (SD)	%	
Age at index	26.8 (7.3)	-	31.4 (10.5)	-	4.36***
Age at admission	30.3 (7.2)	-	34.2 (10.3)	-	3.73***
Age at release	31.9 (7.3)	-	35.8 (10.3)	-	3.75***
Aboriginal ancestry		44.8		32.1	4.37*
Education	9.4 (2.2)	-	9.7 (3.0)	-	0.85
Unemployed		64.4		21.7	49.97***
Never married		33.3		29.8	0.37
Prior sexual convictions	1.2 (2.4)	-	1.0 (1.8)	-	1.07
Prior nonsexual violent convictions	0.6 (1.0)	-	0.4 (1.4)	-	1.29
Index sentence length	5.4 (3.5)	-	5.9 (4.1)	-	1.15

note: * $p < .05$, *** $p \leq .001$

3.3 Inter-rater Reliability

Inter-rater reliability (IRR) was assessed for the PCL-R, the VRAG, SORAG, and VRAG-R through 35 randomly selected cases that were rated by the primary author and three research assistants via intraclass correlation coefficients (ICC; single rater, mixed two way random effects model; see Table 3.4). The IRR for the VRS-SO and its subscales, which were assessed previously in Olver et al. (2007), were found to be acceptable. As outlined in table 3.3, the ICCs for the clinical scales and risk measures were all significant at $p<.001$ and demonstrated a high level of inter-rater agreement. The IRR for the PCL-R was consistent with previous findings (Olver & Wong, 2006) reflecting strong reliability for the total score, with slightly higher reliability for Factor 2 and its subsequent facets (Lifestyle and Antisocial). The results further support the strong reliability of the VRAG and SORAG and further validate the reliability of the recently developed VRAG-R (Rice, et al., 2013).

Table 3.4

Internal Consistency and Inter-Rater Reliability of Risk Measures and Clinical Scales

Measure	Cronbach's Alpha	Intraclass Correlation
PCL-R Total	.93	.87***
PCL-R Factor 1	.90	.82***
PCL-R Factor 2	.95	.90***
PCL-R Interpersonal	.86	.75***
PCL-R Affective	.87	.78***
PCL-R Lifestyle	.90	.83***
PCL-R Antisocial	.96	.92***
VRAG	.98	.95***
SORAG	.97	.94***
VRAG-R	.98	.97***

note: *p<.05; **p<.01; ***$p\leq$.001

3.4 Convergent Validity of Risk Measures.

The clinical scales and the risk measures were correlated with each other in order to examine the convergent validity between them (see Table 3.5). The majority of the correlations were positive and significant at p<.001, while all were significant at the p<.01 level. The magnitude of the correlations was interpreted using the guidelines of Cohen (1992) in which correlations of .10, .30, and .50 correspond to small/low, medium, and high/large, respectively. The PCL-R correlated particularly highly with the VRAG, SORAG, and VRAG-R (r= .68-.74), possibly reflecting that components of the PCL-R are incorporated into those tools. The PCL-R also had moderate in magnitude correlations with the VRS-SO static, dynamic (pre and post), and total (pre and post) scores. The convergence of the PCL-R and the risk measures suggests they all capture a shared underlying construct possibly of antisociality or recidivism risk (Wormith et al., 2007). Of the VRAG/SORAG/VRAG-R, the SORAG had relatively higher correlations with the VRS-SO Static (r = .57), Total Pre-treatment (r = .55) and Post-treatment scales (r = .54). The stronger relationship between the SORAG and the VRS-SO may reflect their focus on sexual offenders specifically, whereas the VRAG and VRAG-R include violent and sexual offenders. Finally, of interest, the recently developed VRAG-R was highly correlated

with the VRAG (r = .84) and SORAG (r = .86), indicating its accordance with its predecessors. Overall, the convergent validity between the measures appeared to be satisfactory.

The convergent validity was further explored between the PCL-R factor and facets and the risk measures (see Table 3.6). Once again, the correlations were positive, with the majority being significant at p <.001, and all being significant at p <.05. Of note, PCL-R factor 2 and in particular, the Antisocial facet, demonstrated the strongest relationship to the VRAG/SORAG/VRAG-R static measures. This is consistent with the historical and static nature of the items assessed on those scales. The VRS-SO static scale and the PCL-R Interpersonal facet had the weakest relationship (r = .12), although it remained significant. Overall and as predicted, higher scores on the PCL-R and its factors and facets were related to higher static and dynamic risk.

Table 3.5

Convergent Validity: Correlations between the Measures

	PCL-R Total	VRAG	SORAG	VRAG-R	VRS-SO Static	VRS-SO Dynamic Pre	VRS-SO Dynamic Post	VRS-SO Total Pre	VRS-SO Total Post
PCL-R Total	1	.74***	.72***	.68***	.33***	.51***	.53***	.51***	.53***
VRAG		1	.91***	.84***	.38***	.34***	.36***	.41***	.42***
SORAG			1	.86***	.57***	.43***	.42***	.55**	.54***
VRAG-R				1	.43***	.30***	.27***	.39***	.38***
VRS-SO Static					1	.48***	.45***	.76***	.74***
VRS-SO Dynamic Pre						1	.96***	.94***	.91***
VRS-SO Dynamic Post							1	.90***	.93***
VRS-SO Total Pre								1	.98***
VRS-SO Total Post									1

note: *p<.05; **p<.01; ***$p\leq$.001

Table 3.6

Convergent Validity: Correlations between PCL-R and the Risk Measures

	PCL-R Total	Factor 1	Factor 2	Interpersonal	Affective	Lifestyle	Antisocial
VRAG	.74***	.38***	.81***	.30***	.37***	.68***	.76***
SORAG	.72***	.37***	.78***	.28***	.37***	.63***	.76***
VRAG-R	.68***	.22***	.84***	.19**	.20**	.60***	.89***
VRS-SO Static	.33***	.18**	.34***	.12*	.19**	.25***	.35***
VRS-SO Dynamic Pre	.51***	.44***	.41***	.37***	.40***	.41***	.32***
VRS-SO Dynamic Post	.53***	.49***	.41***	.40***	.45***	.42***	.31***
VRS-SO Total Pre	.51***	.40***	.44***	.32***	.37***	.41***	.38***
VRS-SO Total Post	.53***	.44***	.45***	.35***	.42***	.42***	.38***

note: *p<.05; **p<.01; ***$p\leq$.001

3.5 Phase 1 Results

3.5.1 Predictive accuracy of the PCL-R and associated measures.

The predictive validity of the PCL-R and the risk measures was assessed through area under the curve (AUC) value in the receiver operating characteristic (ROC) and the corresponding 95% confidence intervals (CI) (see Table 3.7). The predictive accuracy was examined for sexual, violent (including sexual), and general recidivism using a binary yes/no criterion. As previously noted, recidivism was defined as official reconviction and the average follow up time for the sample was 17.7 years.

The PCL-R total score, and the Lifestyle and Antisocial facets, as well as the VRAG, significantly predicted sexual recidivism at the p<.01 level. Further, the PCL-R Factor 2, and the SORAG and VRAG-R predicted sexual recidivism at p<.001. The PCL-R Factor 1, and its corresponding facets did not significantly predict sexual recidivism. According to the criteria outlined by Rice and Harris (2005; small effect AUC= .556, moderate effect AUC= .639, large effect AUC= .714), the AUC values for the significant predictors indicated mainly small effects (Factor 2 and VRAG-R were approaching medium), but the SORAG demonstrated a medium effect size. Further, the 95% CIs for the significant predictors all overlapped substantially, suggesting that there was no difference in predictive accuracy between them for sexual recidivism.

The majority of the measures evidenced significant predictive accuracy for violent recidivism. In particular, the PCL-R Factor 1 and the Affective Facet were significant at p<.01,

while the PCL-R total, Factor 2, Lifestyle and Antisocial Facets, and the VRAG, SORAG, and VRAG-R were significant at $p<.001$. The Interpersonal Facet of the PCL-R was the only scale that failed to reach statistical significance for violent recidivism. The AUC values ranged from small to large for the prediction of violent recidivism, with Factor 1 and the Affective Facet having small effects, the PCL-R Total, Antisocial Facet, and VRAG-R having medium effects, and the Factor 2, Lifestyle Facet, VRAG, and SORAG having large effect sizes. Examining the 95% CIs, although Factor 1 was a significant predictor, the Interpersonal Facet was not. The Interpersonal and Affective CIs significantly overlapped suggesting similar predictive accuracy between them (of note, the Interpersonal Facet's lower CI of .49 was approaching statistical significance). The 95% CIs also indicate that Factor 2's predictive accuracy was superior to that of Factor 1, and their corresponding significant facets had a similar relationship with the Lifestyle and Antisocial being superior to the Affective Facet. Finally, the CIs of the PCL-R, VRAG, SORAG, and VRAG-R reflected similar predictive accuracy between the measures.

For the prediction of general recidivism, PCL-R total, Factor 2 and its Lifestyle and Antisocial Facets, and the VRAG, SORAG, and VRAG-R were significant at the $p<.001$ level, whereas Factor 1 and its Interpersonal and Affective Facets failed to reach statistical significance. The AUC values for the PCL-R Total, Factor 2 and its facets indicated a medium effect size, while the VRAG, SORAG, and VRAG-R had large effects. The 95% CIs for all of the significant predictors sufficiently overlapped, suggesting similar predictive accuracy.

In sum, the PCL-R, VRAG, SORAG, and VRAG-R demonstrated similar significant predictive accuracy for sexual, violent, and general recidivism. Factor 2 of the PCL-R and its corresponding facets displayed superior predictive accuracy over Factor 1 (and its facets) for all types of recidivism. The effect sizes for the PCL-R Total ranged from small for sexual to medium for violent and general, and ranged from small to large for the VRAG, SORAG, VRAG-R. Overall, although the PCL-R is a clinical rating scale, it demonstrated strong predictive accuracy, particularly within Factor 2 and its constituent facets.

Table 3.7

Predictive Validity of the Measures

Measure	Sexual Recidivism			Violent Recidivism			General Recidivism		
	AUC	95% CI		AUC	95% CI		AUC	95% CI	
		Lower	Upper		Lower	Upper		Lower	Upper
PCL-R Total	.60**	.53	.67	.70***	.65	.76	.67***	.60	.74
Factor 1	.52	.45	.60	.59**	.52	.65	.54	.47	.62
Factor 2	.63***	.56	.70	.74***	.68	.80	.71***	.64	.77
Interpersonal	.53	.46	.60	.56	.49	.63	.52	.44	.59
Affective	.52	.45	.59	.59**	.53	.66	.56	.49	.63
Lifestyle	.62**	.55	.68	.72***	.66	.78	.68***	.61	.75
Antisocial	.61**	.54	68	.70***	.64	.76	.68***	.61	.75
VRAG	.62**	.55	.69	.73***	.68	.79	.75***	.69	.81
SORAG	.66***	.59	.72	.73***	.67	.79	.74***	.68	.81
VRAG-R	.63***	.56	.70	.71***	.65	.77	.72***	.65	.78

note: *p<.05; **p<.01; ***$p\leq$.001

3.5.2 Kaplan-Meier Survival Analyses for psychopathic versus nonpsychopathic offenders.

Kaplan-Meier survival analyses were performed to compare psychopathic and nonpsychopathic offenders (25-point PCL-R cutoff) on rates of sexual and violent recidivism. Survival curves demonstrate the proportion of offenders who were reconvicted (i.e., who failed to survive) across the follow-up period as indicated by number of years of survival. As anticipated, those scoring above the 25-point cutoff failed (recidivated) at higher and faster rates than nonpsychopathic men for both outcomes (Figures 3.1 and 3.2). The difference in survival curves for sexual recidivism approached significance (χ^2= 3.74, p= .053) with nonpsychopathic offenders recidivating at a rate of 26.0% and psychopathic men at 36.8%. The difference in rates of violent recidivism was significant (χ^2= 36.46, p<.001) as nonpsychopathic men reoffended violently at a rate of 47.9%, compared to psychopaths at 79.3%. For general recidivism, psychopathic offenders had significantly higher rates (87.4%) than nonpsychopaths (68.4%; χ^2= 27.7, p<.001). In all, psychopathic offenders had consistently higher rates of recidivism.

Figure 3.1

Survival Analysis: Cumulative Proportion of Sexual Recidivism as a Function of Psychopathy

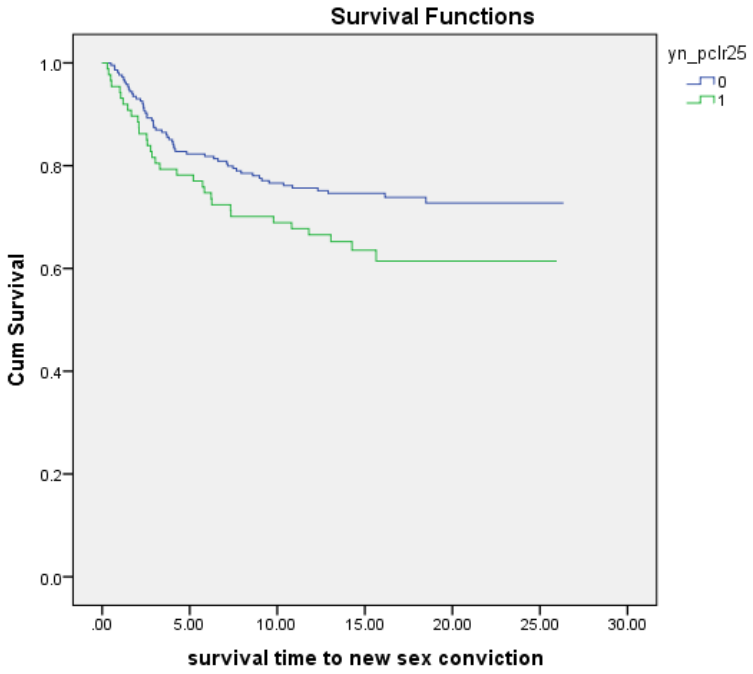
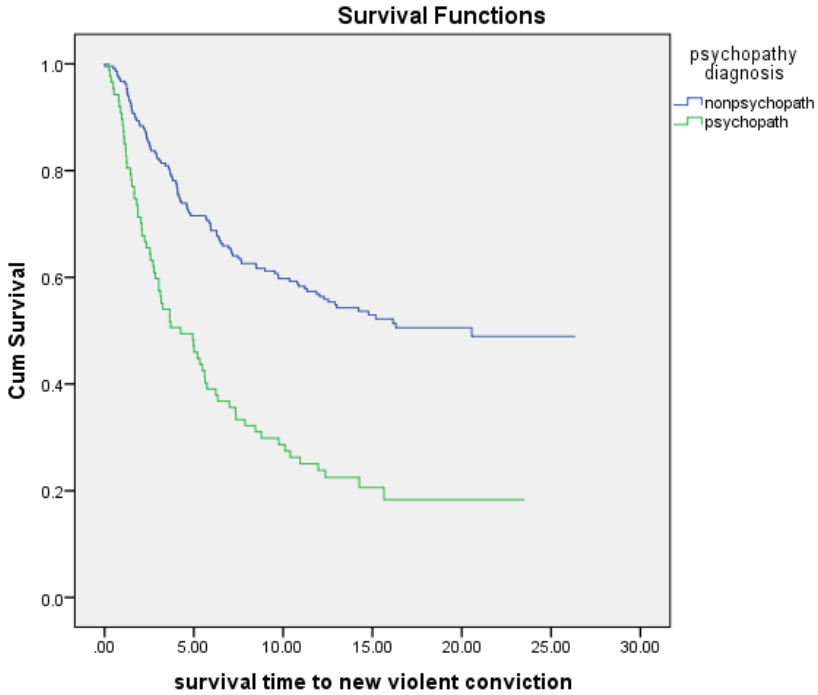


Figure 3.2

Survival Analysis: Cumulative Proportion of Violent Recidivism as a Function of Psychopathy



3.5.3 Kaplan-Meier Survival Analysis for psychopathy and treatment completion.

To explore the relationship between psychopathy and treatment completion and their impact on sexual and violent recidivism, Kaplan-Meier survival analyses were performed. PCL-R scores along with indication from file information that treatment was successfully completed or not was used as the predictor variables, and time to new conviction post release for sexual and violent (including sexual) was the outcome criterion. The 25-point PCL-R cut off was used to distinguish psychopathic from nonpsychopathic offenders. Based on these parameters, the offenders were divided into the following groups: 1) nonpsychopathic – completer (n=204), 2) nonpsychopathic – noncompleter (n =13), 3) psychopathic – completer (n=61), and 4) psychopathic noncompleter (n =26). The survival curves for the four groups were compared on both types of recidivism using the chi-square statistic (χ^2). It was hypothesized that the majority of the sample would successfully complete treatment, and although psychopathic offenders will have high higher rates of dropout, most will complete it. Further, it was anticipated that psychopathic offenders who fail to successfully complete treatment would have the highest failure rates. Figures 3.3 and 3.4 display the rates of sexual and violent recidivism as a function of psychopathy and treatment completion.

Overall, 87.7% of the sample completed treatment. Of the 39 men who dropped out, 26 or roughly two-thirds, were psychopathic. In other words, of the 87 offenders who met criteria for psychopathy, 30% dropped out of treatment. So again, psychopathy is linked to treatment dropout, but many do manage to complete it.

In terms of survival, the only significant difference between the survival curves for sexual recidivism was between nonpsychopathic – completers, recidivating at 25.5%, and psychopathic completers at 37.7% ($\chi^2 = 4.19$, $p<.05$), reflecting significantly different rates and times to sexual reconvictions (see Figure 3.5). The number of sexual recidivists, however, was quite low for the nonpsychopathic – noncompleters (n = 5; recidivism rate at 38.5%) and for the psychopathic – noncompleters (n = 9; recidivism rate at 34.6%), likely resulting in insufficient power to detect a significant difference. Nonetheless, it appeared that nonpsychopathic offenders who successfully completed treatment were reconvicted for sexual offenses at a lower rate than nonpsychopathic offenders who dropped out and both psychopathic completers and noncompleters, who all reoffended at similar rates. This suggests that, contrary to what was anticipated, for psychopathic

offenders treatment completion versus dropout did not lead to significantly lower rates of sexual recidivism.

For violent recidivism, three survival curves differed significantly, indicating different times to new violent (including sexual) convictions: 1) nonpsychopathic – completers differed significantly from the psychopathic completers ($\chi^2 = 24.46$, $p<.001$), 2) nonpsychopathic – completers significantly differed from psychopathic – noncompleters ($\chi^2 = 24.09$, $p<.001$), and 3) nonpsychopathic – noncompleter were significantly different from the psychopathic – noncompleters ($\chi^2 = 4.11$, $p<.05$) (see Figure 3.6). As was anticipated, the nonpsychopathic – completers had the lowest rates of violent recidivism at 47.5%, but their recidivism rate was not significantly lower than nonpsychopathic – noncompleters at 53.8% (possibly due to the small number of failures for this group with only seven recidivists). Contrary to what was hypothesized, the psychopathic completers (recidivism rate at 77.0%) and noncompleters (recidivism rate at 84.6%) evidenced steeper failure curves than the nonpsychopathic completers and noncompleters (although the latter failed to reach statistical significance), suggesting that for violent recidivism, psychopathy seemed to be more indicative of higher rates of reconviction over treatment completion status. It is important to note that successful treatment completion does not necessarily signify quantifiable treatment gains; therefore, it was imperative that treatment change is also measured to capture the degree to which the offenders benefitted from the program, as opposed to simply making it to the end. Furthermore, recidivism following completion or noncompletion may be influenced by prior risk level, which should also be considered.

Figure 3.3

Rates of Sexual Recidivism as a Function of Psychopathy and Treatment Completion

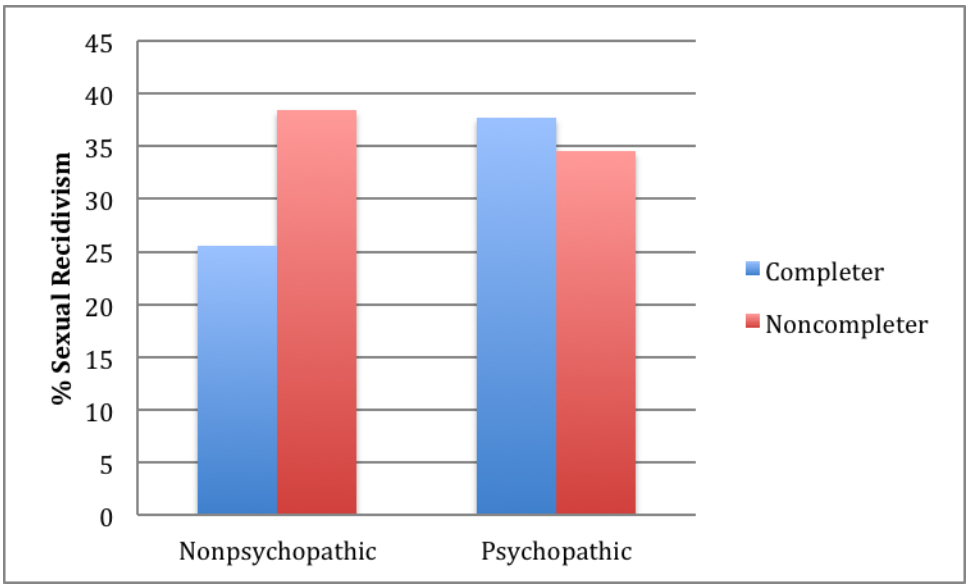


Figure 3.4

Rates of Violent Recidivism as a Function of Psychopathy and Treatment Completion

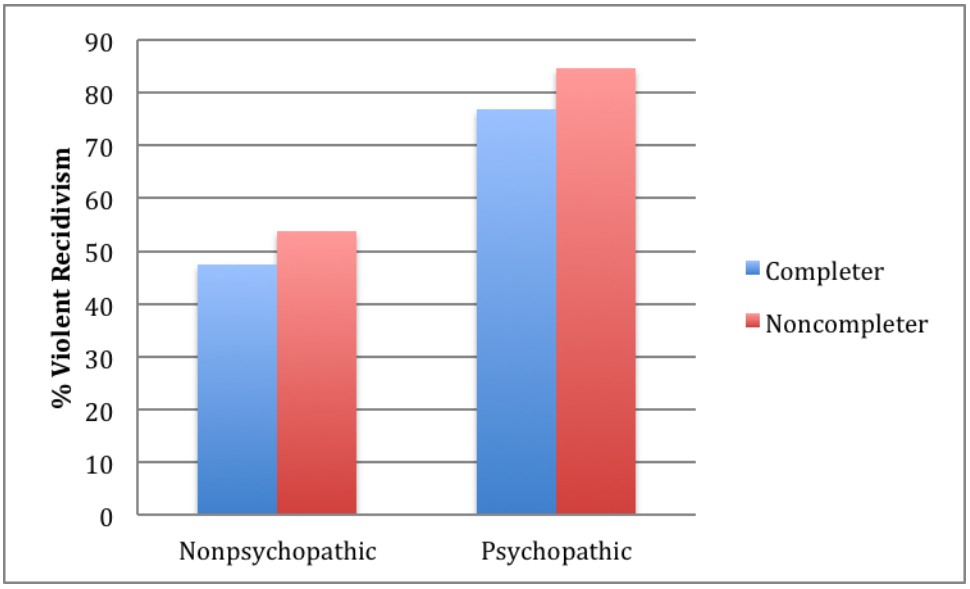


Figure 3.5

Survival Analysis: Cumulative Proportion of Sexual Recidivism Failure Rates as a Function of Psychopathy and Treatment Completion

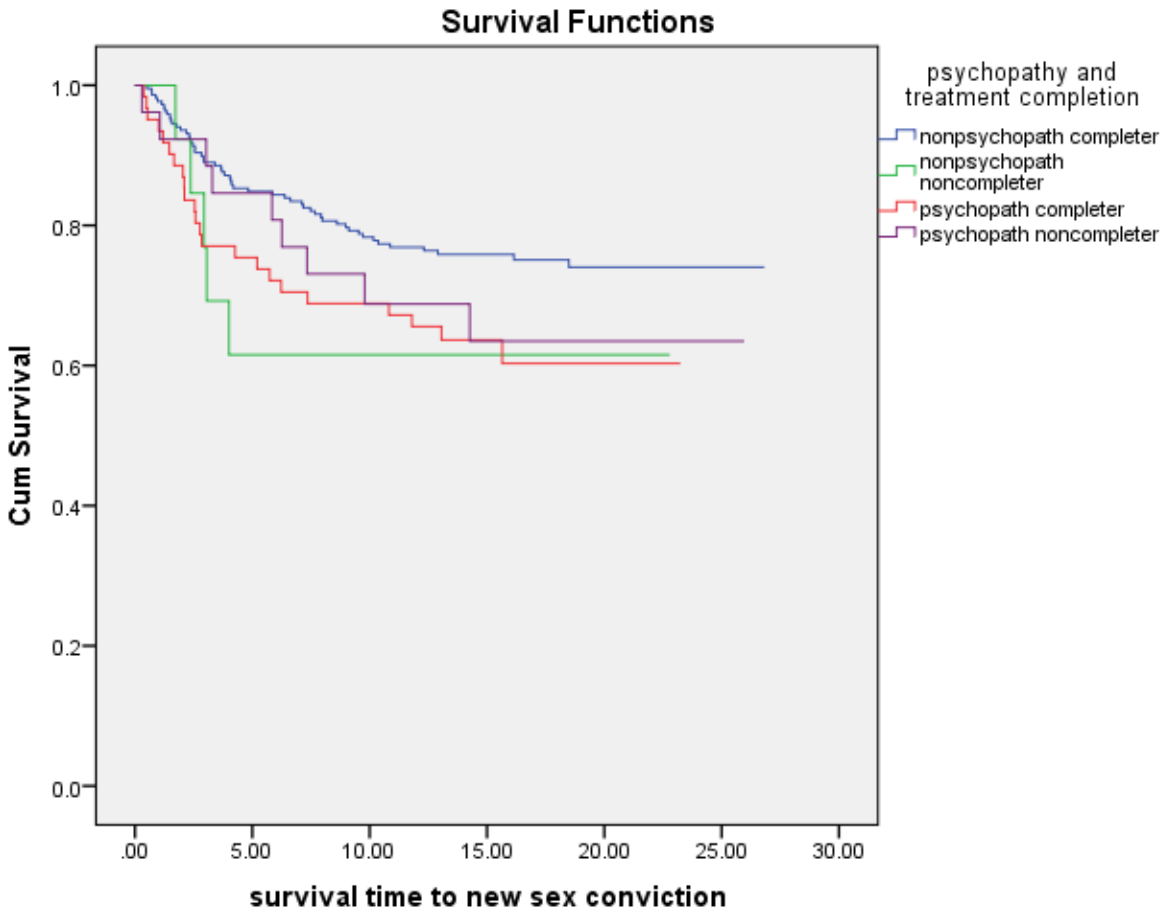
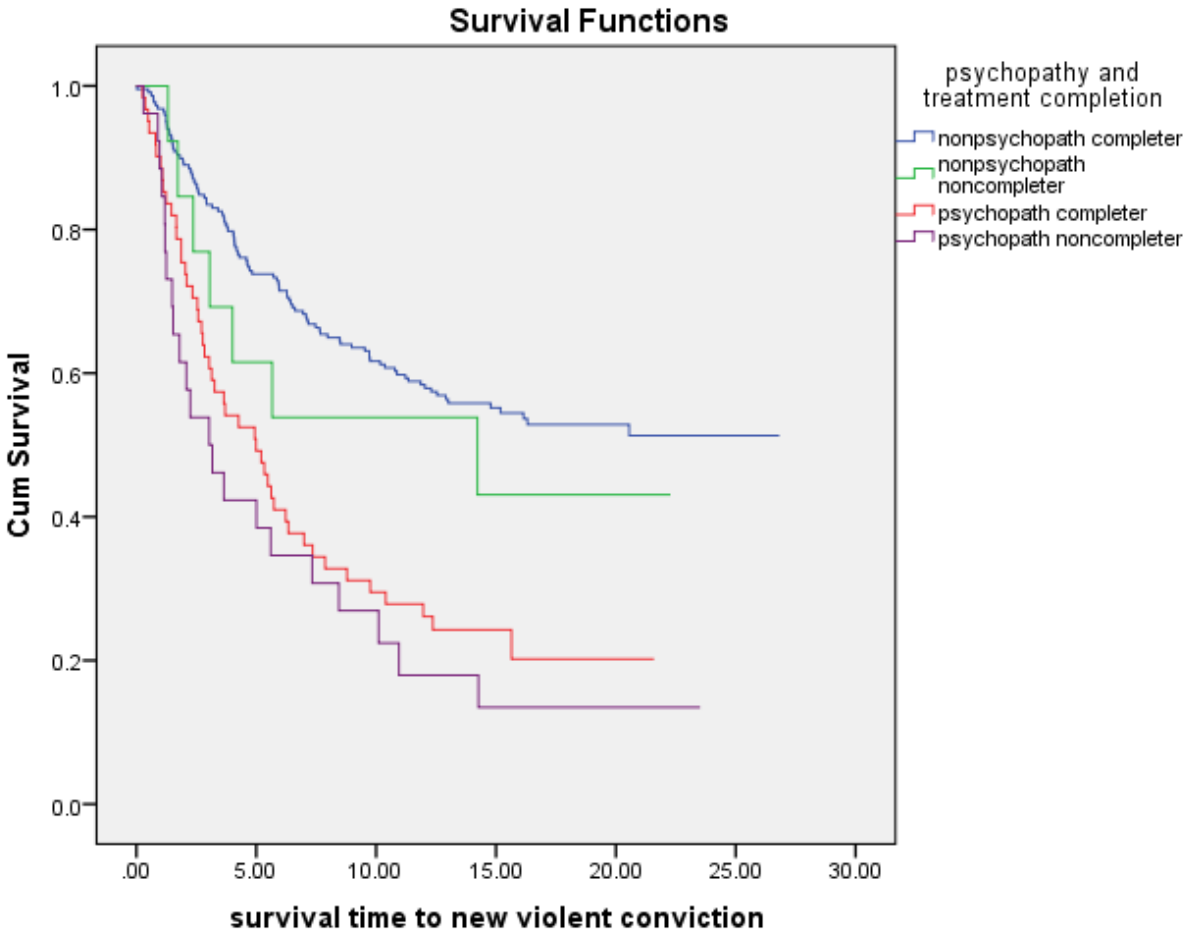


Figure 3.6

Survival Analysis: Cumulative Proportion of Violent Recidivism Failure Rates as a Function of Psychopathy and Treatment Completion



3.5.4 Kaplan-Meier Survival Analyses for psychopathy and risk.

In order to examine the relationship of psychopathy and risk level to sexual and violent recidivism, Kaplan-Meier survival analyses were performed using PCL-R scores and VRS-SO pretreatment total scores as the predictor variables and recidivism type as the crition variables. Again, the 25-point cut off was used to distinguish the psychopathic from nonpsychopathic, while the mean (34.9) of the VRS-SO was used to separate the high risk from low. From this, the following four groups were created: 1) nonpsychopathic – low VRS-SO (*n*=96), 2) nonpsychopathic – high VRS-SO (*n*=119), 3) psychopathic – low VRS-SO (*n*=12), and 4) psychopathic – high VRS-SO (*n*=75). Once again, the survival curves were statistically compared to one another in order to detect differences in survival time and rates of recidivism

using chi-square (χ^2). The higher risk groups, as measured by the VRS-SO, were anticipated to recidivate at the highest rates, regardless of PCL-R score, but high-risk psychopathic offenders would recidivate at the highest rate and low risk nonpsychopathic offenders would be the lowest. See figures 3.7 and 3.8 for the overall rate of sexual and violent reconvictions as a function of psychopathy and risk.

For sexual recidivism, the following two survival curve trajectories differed significantly, suggesting different rates and time to sexual reconviction: the nonpsychopathic – low VRS-SO (recidivism rate = 10.4%) from the nonpsychopathic – high VRS-SO (recidivism rate= 38.7%; χ^2 = 22.11, $p < .001$) and nonpsychopathic – low VRS-SO from the psychopathic – high VRS-SO (recidivism rate = 38.7%; $\chi^2 = 19.99$, $p < .001$) (See figure 3.9). As predicted, the two high-risk groups, as measured by the VRS-SO, had the highest rates of recidivism, significantly higher than the low risk nonpsychopathic group that had the lowest rate. The psychopathic offenders classified as low risk, did have less sexual reconvictions than both high-risk groups (recidivism rate= 25.0%), however statistical significance was not reached. This was possibly due to the small number of low risk psychopathic recidivists (n=3) and the resulting lack of statistical power.

The survival curves were significantly different for all but one of the comparisons (the psychopathic – low VRS-SO to the psychopathic – high VRS-SO) for violent recidivism (Figure 3.10). The nonpsychopathic – low VRS-SO group (recidivism rate= 33.3%) had significantly lower rates of violent recidivism compared to the nonpsychopathic – high VRS-SO group (recidivism rate= 59.7%; χ^2=15.14, p<.001), the psychopathic – low VRS-SO group (recidivism rate= 83.3%; χ^2=18.54, p<.001), and the psychopathic – high VRS-SO group (recidivism rate= 78.7%; χ^2=43.88, p<.001). The nonpsychopathic – high VRS-SO group survival curve also differed significantly from the trajectories of the psychopathic – low VRS-SO group (χ^2=4.28, p<.05) and the psychopathic – high VRS-SO group (χ^2=11.02, p<.01). Contrary to what was anticipated, the psychopathic – low VRS-SO had violently recidivated at the fastest and highest rate (although not significantly different from the psychopathic – high risk offenders), which again, may be influenced by the small cell size for that group. Nevertheless, it appeared that the interaction between psychopathy and risk was relevant for violent reconvictions as the psychopathic groups had the highest rates, suggesting that both risk and psychopathy added incrementally to violent recidivism.

Figure 3.7

Rates of Sexual Recidivism as a Function of Psychopathy and Risk

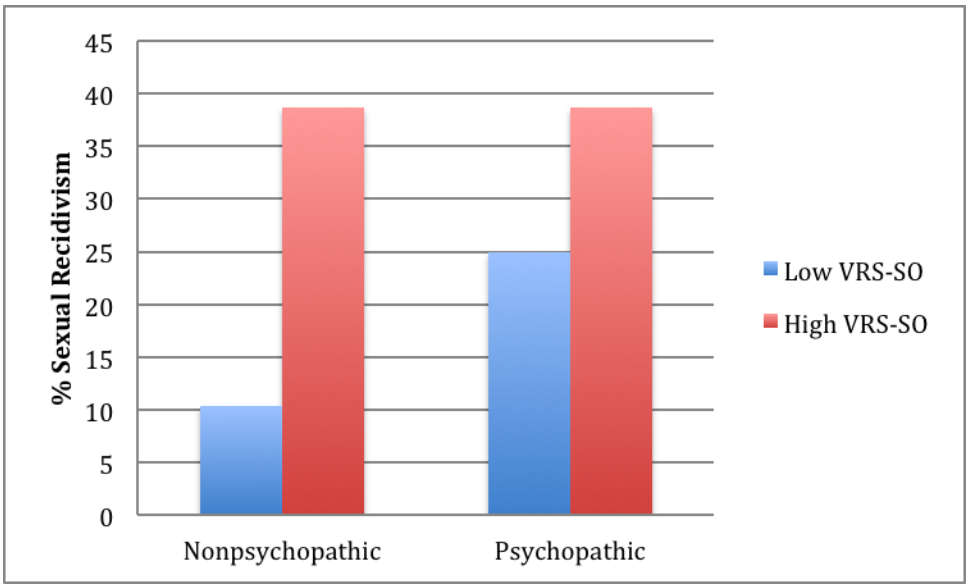


Figure 3.8

Rates of Violent Recidivism as a Function of Psychopathy and Risk

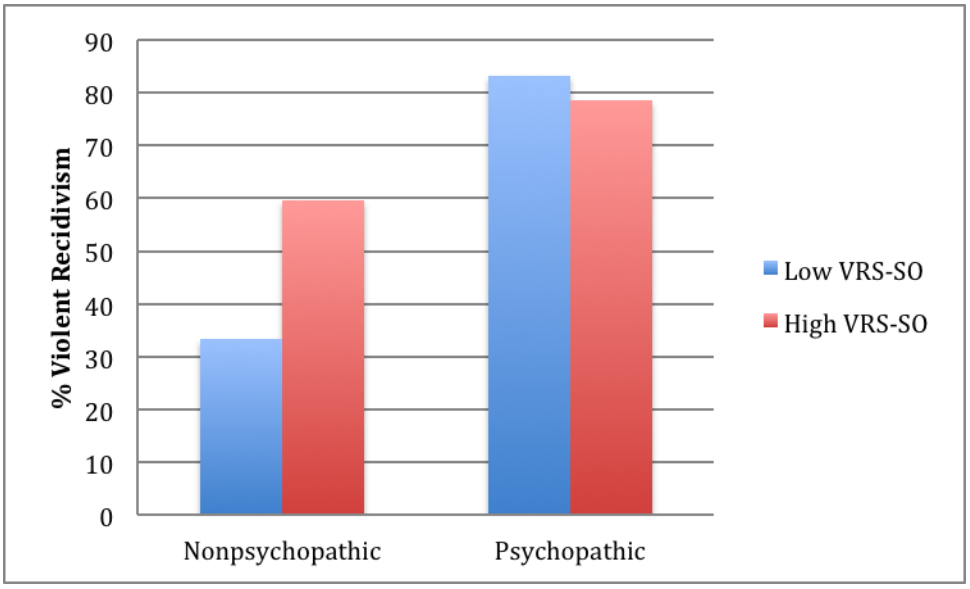


Figure 3.9

Survival Analysis: Cumulative Proportion of Sexual Recidivism Failure Rates as a Function of Psychopathy and VRS-SO Risk Level

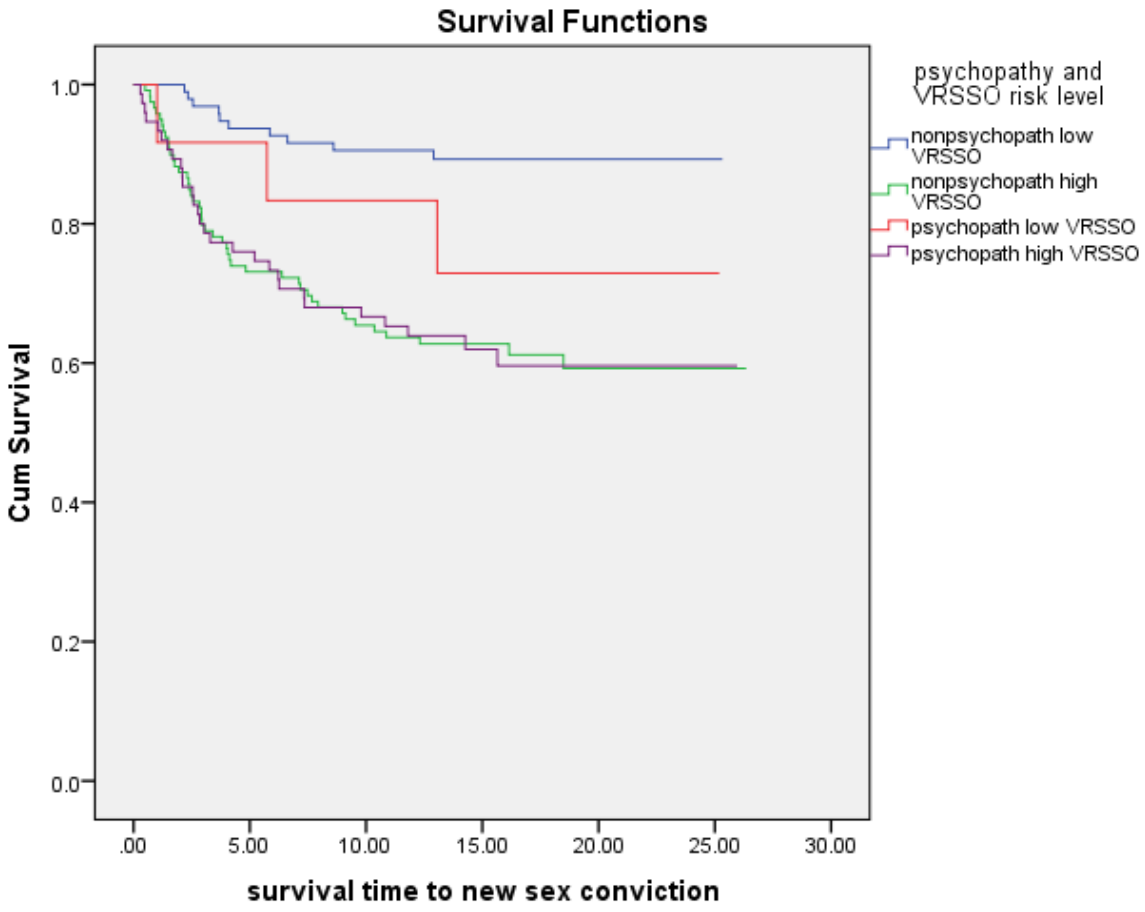
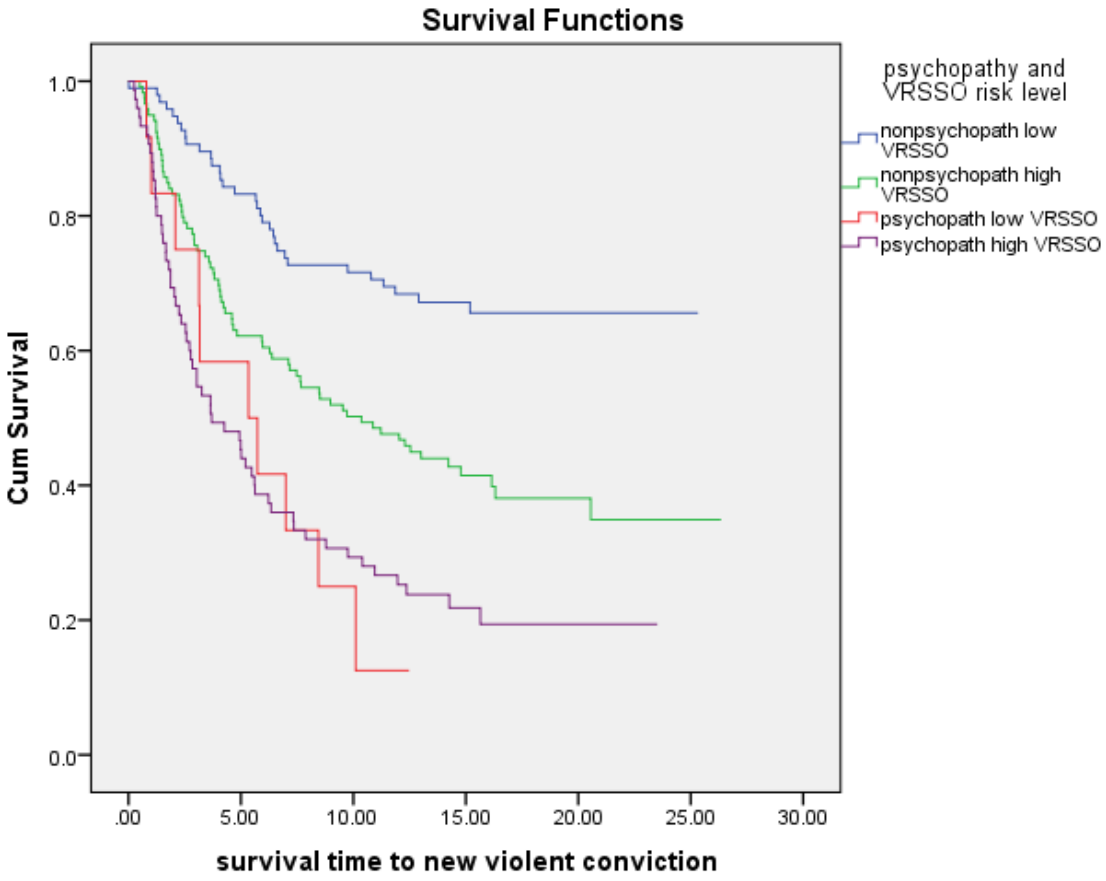


Figure 3.10

Survival Analysis: Cumulative Proportion of Violent Recidivism Failure Rates as a Function of Psychopathy and VRS-SO Risk Level



3.5.5 Associations between psychopathy and treatment change.

To examine the relationship between psychopathy and treatment change, PCL-R total, factor, and facet scores were correlated and regressed on the VRS-SO change scores (see Table 3.8). It was predicted that most offenders would make progress in treatment, but offenders with psychopathic traits would have fewer quantified treatment gains than nonpsychopathic offenders, as indicated by lower VRS-SO change scores. In other words, the PCL-R would be negatively correlated with treatment change. The results showed that PCL-R total scores were not significantly correlated with treatment change, however, Factor 1 was significantly correlated with lower change scores r = -.16 (p < .01), as were the corresponding facets with Interpersonal r = -.12 (p < .05) and Affective r = -.19 (p < .01). Multiple regression was subsequently performed wherein VRS-SO measured treatment change was regressed on the linear combination of PCL-R

facets. Although the linear combination significantly predicted treatment change (R = .21, F [4, 295] = 3.39, p = .01), the Affective facet was the only uniquely significant predictor (p < .01) of treatment change, with higher scores predicting poorer treatment progress. None of the remaining three facets uniquely predicted outcome. Therefore, it appeared that the traits represented by Factor 1 of the PCL-R (i.e. the tendencies of glibness, manipulation, remorseless, failing to accept responsibility) were significantly related to demonstrating fewer positive therapeutic gains.

Table 3.8

Correlation and Regression of PCL-R Facets and Treatment Change

PCL-R measures	*r*	Beta
PCL-R Total	-.08	-
Factor 1	-.16**	-
Factor 2	.00	-
Interpersonal	-.12*	-.01
Affective	-.19**	-.20**
Lifestyle	-.04	-.02
Antisocial	.04	.10

note: *p<.05; **p<.01

3.5.6 Cox Regressions for psychopathy, risk measures, and treatment change.

To examine the incremental validity of the PCL-R total score, measures of risk, and the VRS-SO treatment change score for predicting sexual and violent recidivism, a number of Cox regression survival analyses were performed. For the first analysis (see Table 3.9), the PCL-R total score was entered in the first block, followed by the VRS-SO change score in the second block, and the VRS-SO pretreatment risk score was added in the third block. For the first two blocks, PCL-R was a significant (p<.01) predictor of both sexual and violent recidivism including while controlling for treatment change, whereas treatment change failed to predict either categories of recidivism when controlling for PCL-R scores. In the next step, VRS-SO preatreatment risk total was controlled for, in order to capture the incremental role that risk plays in predicting recidivism, over psychopathy and treatment change. At this step, the PCL-R no longer significantly predicted sexual recidivism, once risk and treatment change were accounted for. The VRS-SO pretreatment total, was the only significant predictor, with the Exp(B) in the anticipated direction, where a one point increase in risk was associated with an 8% increase in sexual recidivism (e^B=1.08). Treatment change was trending towards significantly predicting decreased sexual recidivms at p=.08 (e^B=.92). For violent recidivism, all three measures uniquelly predicted with Exp(B) in the expected direction, that is, higher PCL-R and higher risk (e^B= 1.06 and 1.03, respectively) predicted increased violent recidivism at the p<.01 level, while higher treatment change predicted decreased violent recidivism (e^B=.93) at p<.05. So it appeared

that psychopathy was almost irrelevant in predicting sexual recidivism once risk and treatment change were taken into account, but psychopathy, as well as risk and treatment change, was a relevant predictor of violent recidivism.

Three more regressions were run in order to implement a more comprehensive control for risk and to further examine the unique contributions that the VRAG/SORAG/VRAG-R added to the prediction of risk beyond that of the PCL-R, VRS-SO pretreatment total, and treatment change. For the first regression (see Table 3.10), VRAG scores were added in block one, VRS-SO pretreatment total in the second block, PCL-R total score in the third block, and finally treatment change in the fourth block. Two more regressions were run substituting the VRAG for the SORAG (see Table 3.11) and VRAG-R (see Table 3.12), respectively. Overall, the Exp(B) values of the risk measures were in the expected direction for all steps, indicating higher risk was predictive of higher rates of recidvism. Futhermore, it appeared that the VRS-SO pretreatment total scale was a stronger predictor of sexual recidivism, whereas the VRAG/SORAG/VRAG-R tools were stronger predictors of violent recidivism. Specifically, at the fourth block, the VRS-SO was a significant predictor of sexual recidivism at $p<.001$, when controlling for static risk (as measured by the VRAG/SORAG/VRAG-R), PCL-R scores, and treatment change ($e^B=1.07$). Likewise, at the fourth block, the VRAG/SORAG/VRAG-R were all significant predictors of violent recidivism ($p<.001$) when controlling for the VRS-SO pretreatment total, PCL-R, and treatment change (VRAG $e^B=1.05$, SORAG $e^B=1.04$, VRAG-R $e^B=1.03$).

The predictive validity of the PCL-R was less straightforward, after the more comprehensive control for risk (with both the VRS-SO pretreatment total and the VRAG/SORAG/VRAG-R) and treatment change was implemented. Specifically, at the fourth block, the PCL-R was no longer a significant predictor of violent recidivism, however the Exp(B) values were in the expected direction with higher PCL-R predicting higher violent recidivism. The relationship to sexual recidivism on the other hand, was unexpected. After controlling for risk and treatment change, the PCL-R was trending towards signficance (with the SORAG and VRAG-R static measures as controls, and not significant for the VRAG) at the $p=.06$ level, but in the inverse direction. That is, the Exp(B) values reflected up to 4% decrease in sexual recidivism with every one-point increase in PCL-R score (VRAG $e^B= .97$, SORAG $e^B=.96$, VRAG-R $e^B=.96$). So after static and dynamic risk factors and progress in treatment are considered, PCL-R measured psychopathy was a much weaker predictor of sexual and violent recividivsm. This suggests that

risk factors and monitoring treatment change may be particularly salient factors in the assessment of risk posttreatment, in contrast to an individual's level of psychopathy.

Finally, when controlling for static and dynamic risk and PCL-R scores, the incremental predictive power of treatment change ranges from trending towards significance to signficant at the $p<.01$ level. The situations for which significance was at the trend level for sexual recidivism may be a result of a power issues, because there were simply more cases of violent hazards than there were for sexual, increasing the power to reach statistical significance. In any case, the Exp(B) values for treatment change for sexual and violent recidivism were in the expected direction (e^B ranged from .89 to .92), indicating that a one-point increase on the treatment change scale was predictive of between 8-11% decrease in recidivism. This denotes the importance of considering progress made in treatment above and beyond that of risk and psychopathic traits, because treatment change added incremental value in the prediction of recidivism while controlling for those factors.

Table 3.9

Relative Contributions of Psychopathy, VRS-SO Pretreatment Risk, & Treatment Change for Predicting Sexual and Violent Reconviction

Regression model	Sexual Recidivism							Violent Recidivism						
	B	SE	Wald	*p*	e^B	95% CI		B	SE	Wald	*P*	e^B	95% CI	
						Lower	Upper						Lower	Upper
1. PCL-R	.05	.01	10.09	<.01	1.05	1.02	1.08	.08	.01	51.04	<.01	1.08	1.06	1.10
2. PCL-R	.05	.01	9.80	<.01	1.05	1.02	1.08	.08	.01	50.60	<.01	1.08	1.06	1.10
Txt Change	-.03	.05	.33	.57	.97	.88	1.07	-.06	.03	2.53	.11	.95	.89	1.01
3. PCL-R	-.01	.02	.36	.55	.99	.96	1.02	.06	.01	19.37	<.01	1.06	1.03	1.08
VRS-SO Pre-tot	.07	.01	35.90	<.01	1.08	1.05	1.10	.03	.01	7.54	<.01	1.03	1.01	1.05
Txt Change	-.08	.05	3.10	.08	.92	.84	1.01	-.08	.03	4.79	.03	.93	.87	.99

Table 3.10

Relative Contributions of VRAG, VRS-SO Pretreatment Risk, & Treatment Change for Predicting Sexual and Violent Reconviction

	Measures	Sexual Recidivism							Violent Recidivism						
		B	SE	Wald	*p*	e^B	95% CI		B	SE	Wald	*p*	e^B	95% CI	
							Lower	Upper						Lower	Upper
1.	VRAG	.04	.01	11.55	<.01	1.04	1.02	1.06	.07	.01	60.61	<.01	1.07	1.05	1.09
2.	VRAG	.01	.01	1.08	.30	1.01	.99	1.04	.06	.01	40.06	<.01	1.06	1.04	1.08
	VRS-SO Pre Tot	.06	.01	31.84	<.01	1.06	1.04	1.09	.03	.01	9.74	<.01	1.03	1.01	1.04
3.	VRAG	.03	.02	2.73	.10	1.03	1.00	1.06	.05	.01	18.44	<.01	1.05	1.03	1.08
	VRS-SO Pre Tot	.07	.01	32.73	<.01	1.07	1.05	1.10	.02	.01	6.15	.01	1.02	1.01	1.04
	PCL-R	-.03	.02	1.76	.18	.97	.93	1.02	.01	.02	.53	.47	1.01	.98	1.05
4.	VRAG	.03	.02	2.56	.11	1.03	.99	1.06	.05	.01	19.51	<.01	1.05	1.03	1.08
	VRS-SO Pre Tot	.07	.01	35.99	<.01	1.07	1.05	1.10	.03	.01	8.88	<.01	1.03	1.01	1.05
	PCL-R	-.04	.02	2.36	.13	.97	.92	1.01	.01	.02	.21	.65	1.01	.98	1.04
	Txt Change	-.08	.05	2.95	.09	.92	.84	1.01	-.08	.04	5.85	.02	.92	.86	.98

Table 3.11

Relative Contributions of SORAG, VRS-SO Pretreatment Risk, & Treatment Change for Predicting Sexual and Violent Reconviction

	Measures	Sexual Recidivism							Violent Recidivism						
		B	SE	Wald	*p*	e^B	95% CI		B	SE	Wald	*p*	e^B	95% CI	
							Lower	Upper						Lower	Upper
1.	SORAG	.04	.01	17.81	<.01	1.04	1.02	1.06	.05	.01	55.09	<.01	1.05	1.04	1.07
2.	SORAG	.01	.01	1.56	.21	1.01	.99	1.04	.05	.01	31.40	<.01	1.05	1.03	1.06
	VRS-SO Pre Tot	.06	.01	22.81	<.01	1.06	1.03	1.08	.02	.01	3.17	.08	1.02	1.00	1.03
3.	SORAG	.03	.02	3.42	.07	1.03	1.00	1.06	.04	.01	12.36	<.01	1.04	1.02	1.06
	VRS-SO Pre Tot	.06	.01	24.63	<.01	1.06	1.04	1.09	.01	.01	1.57	.21	1.01	.99	1.03
	PCL-R	-.03	.02	2.07	.15	.97	.93	1.01	.03	.02	2.75	.10	1.03	1.00	1.06
4.	SORAG	.03	.02	4.34	.04	1.03	1.00	1.06	.04	.01	15.80	<.01	1.04	1.02	1.06
	VRS-SO Pre Tot	.07	.01	27.71	<.01	1.07	1.04	1.09	.02	.01	3.30	.07	1.02	1.00	1.04
	PCL-R	-.04	.02	3.48	.06	.96	.92	1.00	.02	.02	1.13	.29	1.02	.99	1.05
	Txt Change	-.10	.05	4.00	.05	.91	.83	1.00	-.10	.04	8.11	<.01	.91	.85	.97

Table 3.12

Relative Contributions of VRAG-R, VRS-SO Pretreatment Risk, & Treatment Change for Predicting Sexual and Violent Reconviction

	Measures	Sexual Recidivism							Violent Recidivism						
		B	SE	Wald	*p*	e^B	95% CI		B	SE	Wald	*p*	e^B	95% CI	
							Lower	Upper						Lower	Upper
1.	VRAG-R	.02	.01	11.96	<.01	1.02	1.01	1.04	.03	.01	43.04	<.01	1.03	1.02	1.04
2.	VRAG-R	.01	.01	1.81	.18	1.01	1.00	1.02	.03	.01	27.59	<.01	1.03	1.02	1.04
	VRS-SO Pre Tot	.06	.01	29.38	<.01	1.06	1.04	1.08	.03	.01	11.01	<.01	1.03	1.01	1.04
3.	VRAG-R	.02	.01	3.63	.06	1.02	1.00	1.04	.02	.01	11.16	<.01	1.02	1.01	1.03
	VRS-SO Pre Tot	.07	.01	30.49	<.01	1.07	1.04	1.09	.02	.01	4.23	.04	1.02	1.00	1.04
	PCL-R	-.03	.02	2.02	.16	.97	.93	1.01	.03	.02	4.21	.04	1.03	1.00	1.06
4.	VRAG-R	.02	.01	4.97	.03	1.02	1.00	1.04	.03	.01	16.46	<.01	1.03	1.01	1.04
	VRS-SO Pre Tot	.07	.01	34.61	<.01	1.07	1.05	1.10	.03	.01	7.71	.01	1.03	1.01	1.05
	PCL-R	-.04	.02	3.67	.06	.96	.92	1.00	.02	.02	1.52	.22	1.02	.99	1.05
	Txt Change	-.10	.05	4.40	.04	.91	.82	.99	-.11	.04	10.09	<.01	.89	.83	.96

3.5.7 Kaplan-Meier Survival Analyses for psychopathy and treatment change.

As previously mentioned, it was important to examine the interaction of psychopathy with treatment change, over and above that of treatment completion on recidivism rates because successfully completing treatment does not necessarily equate with treatment gains. Therefore, Kaplan-Meier survival analyses were conducted to examine sexual and violent recidivism trajectories based on psychopathy and treatment change (measured by the VRS-SO treatment change score). The 25-point threshold was implemented for the PCL-R while high change offenders were classified as those scoring greater than one standard deviation above the 2.5 mean (*SD*=2.1) on the VRS-SO treatment change scale and low change were all scores below that point. Although the cut-off for the high change group was more stringent than a mean-split and thus reduced the sample size and statistical power, this criterion was selected to ensure that the high-change group had made substantial change. Therefore, findings for the high change group would reflect true treatment progress more confidently than if a mean-split had been applied. The four groups consequently broke down to the following: 1) nonpsychopathic – low change (*n*=180), 2) nonpsychopathic – high change (*n*=35), 3) psychopathic – low change (*n*=69), and 4) psychopathic – high change (*n*=18). It was predicted that psychopathic offenders who made large gains in treatment would recidivate at lower rates than psychopathic offenders who failed to make gains. Furthermore, psychopathic offenders who have lower treatment change scores will recidivate at the highest rate and nonpsychopathic offenders who make large gains in treatment will have the lowest rates of recidivism. Figures 3.11 and 3.12 display the rates of sexual and violent recidivism for the four groups.

The only significant difference between the survival curves for sexual recidivism was between the nonpsychopathic – low change (recidivism rate= 25.0%) and the psychopathic – low change group (χ^2=6.52, p<.05), indicating that psychopathic offenders who failed to make large gains in treatment sexually recidivated at a significantly faster and higher rate than their nonpsychopathic low change counterparts. Observing figure 3.13, the group who sexually recidivated at the lowest rate were actually the psychopathic offenders who made large gains in treatment. Moreover, psychopathic offenders who made large gains had a 22.2% recidivism rate compared to psychopathic offenders who did not make large gains with a rate of 40.6%. That is a difference of 18.4% in rates of sexual recidivism between the two psychopathic groups; however, this did not reach statistical significance likely owing to small cell sizes. Contrary to

earlier predictions, the nonpsychopathic-high change group recidivated at a rate of 31.4%, 6.4% greater than that of its nonpsychopathic-low change counterpart and 9.2% greater than the psychopathic-high change group. To highlight important findings from this analysis, essentially there is a group of psychopathic offenders who made enough change in treatment that their recidivism did not differ significantly from the nonpsychopathic offenders.

For violent recidivism, two significant differences resulted (see Table 3.14). The nonpsychopathic – low change group (recidivism rate= 47.8%), differed significantly from the psychopathic – low change group (recidivism rate= 84.1%; χ^2=41.68, p<.001), and the nonpsychopathic – high change group (recidivism rate=48.6%) also differed significantly from the psychopathic – low change group (χ^2=12.26, p<.001). Another comparison worth noting was between the psychopathic – low change group and the psychopathic – high change group (χ^2=3.10, p= .08), which was trending towards the low change group having a significantly higher violent recidivism rate (84.1%) than the high change group (61.1%). Of note, with regard to this latter finding, the rate that psychopathic offenders who failed to demonstrate quantifiable treatment gains was 23 percentage points higher than that of psychopathic offenders who benefitted from treatment, a difference that is not negligible. Overall, both nonpsychopathic groups had similar and lower rates of recidivism than their psychopathic counterparts who did poorly in treatment, suggesting that possessing fewer psychopathic traits is risk relevant, particularly for those individuals who fail to demonstrate treatment change. That being said, psychopathic offenders who did manage to make gains in treatment did not differ significantly from the either of the nonpsychopathic groups, suggesting that there is a group of offenders with psychopathic traits who are able to benefit enough from treatment that their violent reconviction rate is similar to that of nonpsychopathic offenders. Specifically, the high psychopathy high change group recidivated 12.5-13.3% more than the nonpsychopathic groups, a difference that was much smaller than the difference between the two psychopathy groups. That being said, the lack of statistical significance between the nonpsychopathic groups and the psychopathic high change group may also be a power issue. It is further worth noting that high change psychopathic offenders did not differ in their PCL-R profiles from low change psychopathic offenders, suggesting that individual differences in psychopathic traits did not contribute to observed differences between the groups in violent and sexual recidivism rates (see Table 3.13).

Figure 3.11

Rates of Sexual Recidivism as a Function of Psychopathy and Treatment Change

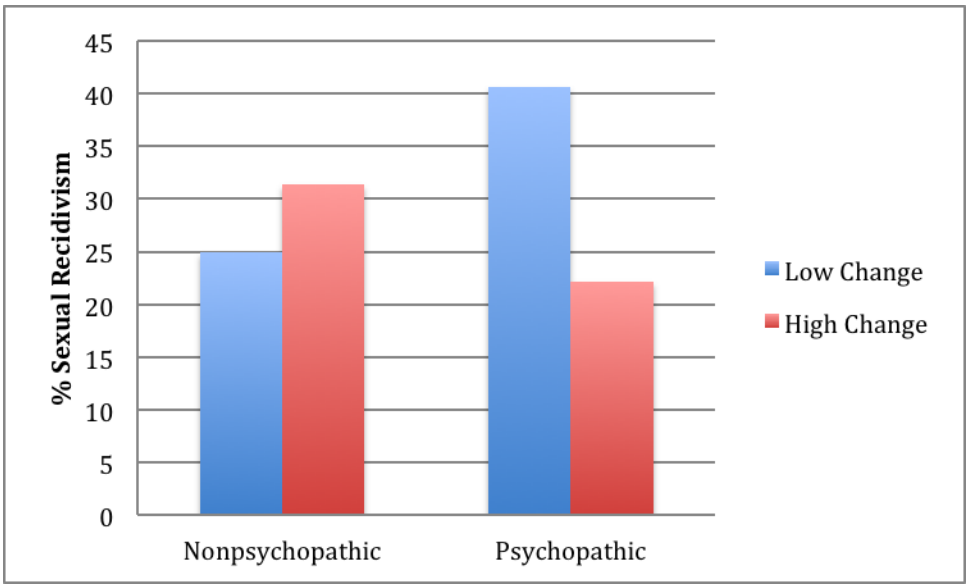


Figure 3.12

Rates of Violent Recidivism as a Function of Psychopathy and Treatment Change

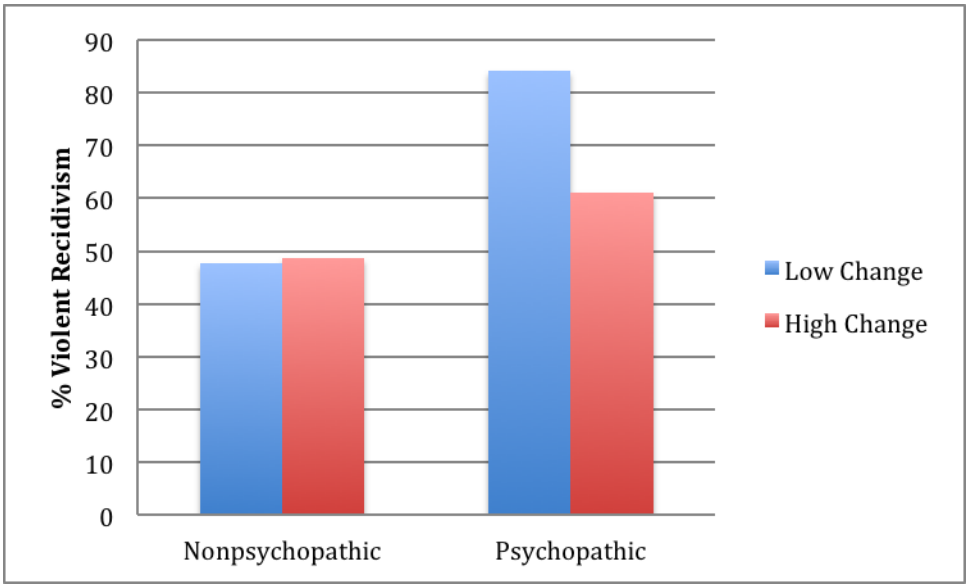


Figure 3.13

Survival Analysis: Cumulative Proportion of Sexual Recidivism Failure Rates as a Function of Psychopathy and VRS-SO Treatment Change

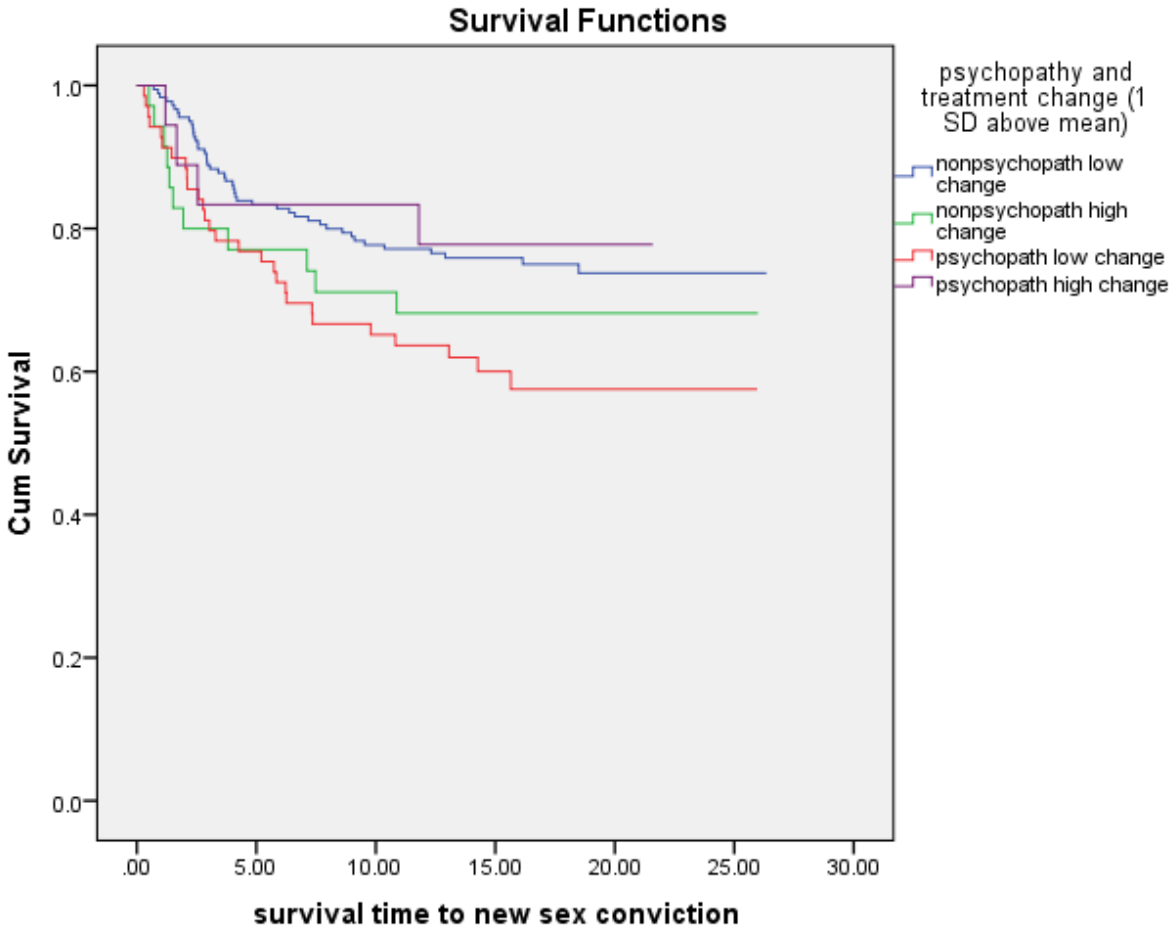


Figure 3.14

Survival Analysis: Cumulative Proportion of Violent Recidivism Failure Rates as a Function of Psychopathy and VRS-SO Treatment Change

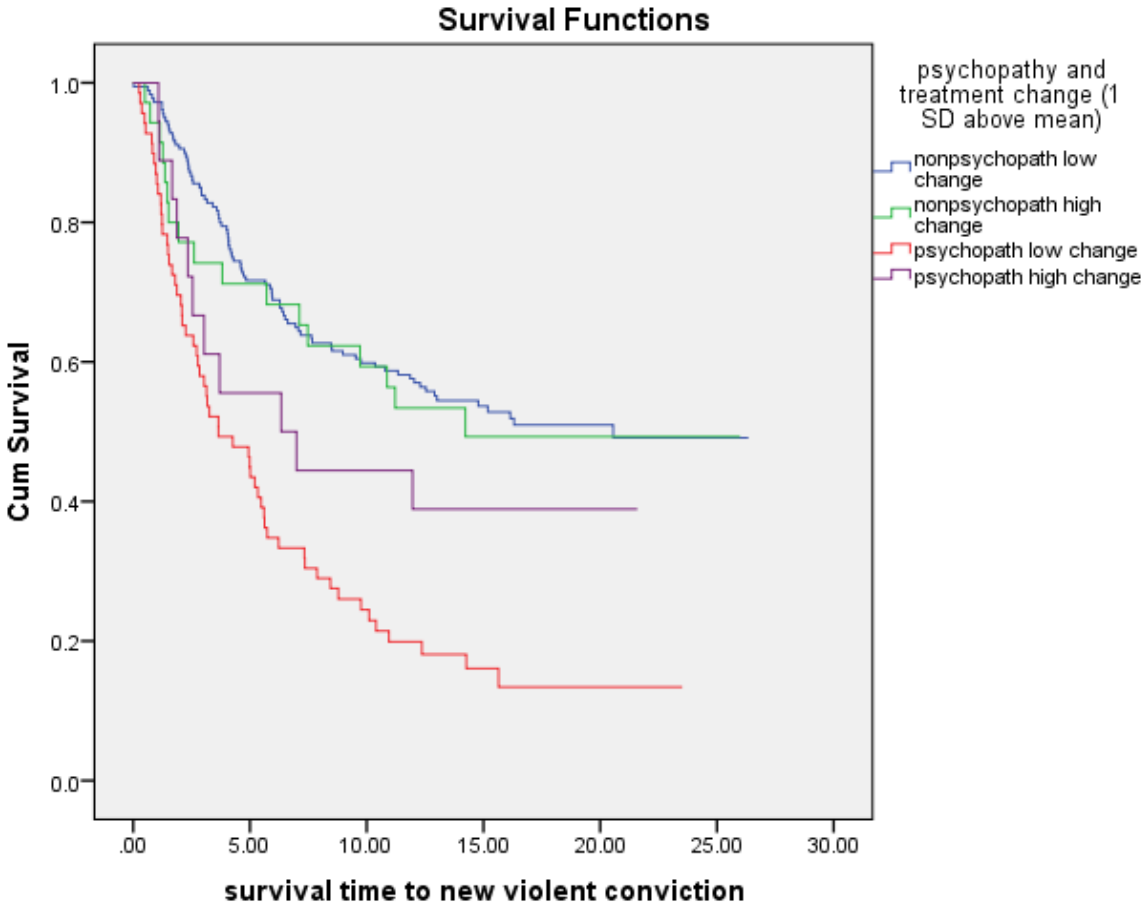


Table 3.13

PCL-R Profile Comparisons between High Psychopathy Offenders Registering Low vs. High Change

PCL-R measure	High psychopathy low change (n = 69)		High psychopathy high change (n = 18)		*t*
	M	SD	M	SD	
Interpersonal	4.0	2.0	3.9	2.2	0.15
Affective	6.7	1.2	6.4	1.1	0.91
Lifestyle	8.0	1.6	7.9	1.1	0.06
Antisocial	8.1	1.4	8.2	1.7	0.12
Factor 1	10.7	2.6	10.5	2.8	0.24
Factor 2	16.1	2.3	16.1	2.1	0.02
Total	29.7	3.3	29.4	3.5	0.35

3.5.8 AUC and correlations for psychopathy and risk measures with treatment change.

To examine the predictive accuracy of the PCL-R and the static risk measures (VRAG, SORAG, and VRAG-R) for offenders who have made significant therapeutic gains, the predictive efficacy of the PCL-R and static risk measures was examined among offender groups who had made various amounts of change across the entire sample. Specifically, correlation and ROC analyses were performed on the overall sample, as well as four groups categorized by the VRS-SO treatment scale based on SDs as follows: 1) more than one standard deviation below the mean (*n*= 63-64), 2) between 1 and 0 standard deviations below the mean (*n*=90-91), 3) between 0 and 1 standard deviations above the mean (*n*= 90-94), and 4) greater than 1 standard deviation above the mean (*n*=53). The range of *n* within the cells were due to a number of offenders having the PCL-R and VRAG rated, but not the SORAG or VRAG-R. It was anticipated that the predictive accuracy of the static measures would erode among offenders who have made significant therapeutic gains. For the sample as a whole, the PCL-R, VRAG, SORAG, and VRAG-G significantly predicted sexual and violent recidivism at the $p<.001$ level, with the exception of the VRAG and VRAG-R, which predicted sexual recidivism at the $p<.01$ level.

The four change groups had similar means and standard deviations on the four measures, and thus adequate range and variance in their scores (see Table 3.14). A one way ANOVA with post hoc Tukey beta comparisons demonstrated that the highest change group had higher PCL- and SORAG scores than the two moderate change groups, while the lowest change group had

higher PCL-R scores than the 0 to +1 standard deviation change group. For the two groups whose therapeutic gains were below the mean, the PCL-R failed to significantly predict sexual recividism for the lowest group, but was significant at the $p<.01$ level for those between -1 and 0 SD, while it was significant at $p<.001$ for violent recidivism (see Table 3.15). The VRAG, SORAG, and VRAG-R significantly predicted sexual recidivism for the two groups between $p<.05$ and $p<.01$ and violent recidivism at the $p<.001$ level. For the group who made within one SD above the mean of change, the PCL-R, VRAG, and VRAG-R failed to significantly predict sexual recidivism, with only the SORAG predicting at the $p<.05$ level, while the PCL-R predicted violent recidivism at $p<.01$, and the VRAG, SORAG, and VRAG-R significantly predicted at the $p<.001$. For the group who made the most gains in treatment (greater than 1 SD), neither the PCL-R, nor the risk measures significantly predicted either sexual or violent recidivism. This suggests that, for offenders who make the most change in treatment, static risk and psychopathy were no longer related to sexual or violent recidivism. Of further note, total PCL-R scores and SORAG scores were significantly higher for the group who made the most change than for two of the groups who made less change, indicating that PCL-R total score and risk did not relate to worse progress.

Table 3.14

Mean Static Risk Scores and Group Comparisons Among VRS-SO Change Categories

Measures	Overall (N = 296-302)		< -1 SD (n = 63-64)		-1 to 0 SD (n = 90-91)		0 to 1 SD (n = 90-94)		> 1 SD (n = 53)	
	M	SD	M	SD	M	SD	M	SD	M	SD
PCL-R	20.2	7.7	23.8	7.6 [a]	18.8	7.8	18.3	6.9	21.6	7.2 [a,b]
VRAG	10.5	10.2	12.8	10.6	9.9	10.7	8.9	9.9	11.6	8.9
SORAG	18.1	12.0	20.3	12.2	15.8	12.6	16.8	11.9	21.8	9.9 [a,b]
VRAG-R	16.8	18.6	17.9	17.9	14.2	20.1	15.6	18.9	21.8	15.6

note: Tukey beta post hoc comparisons, a = significantly different from 0 to 1 SD change, b significantly different from -1 to 0 SD of change.

Table 3.15

Correlations and AUCs between PCL-R and Static Risk Measures and Outcomes for Offenders with Varying Treatment Change

Measures		Overall (N = 296-302)		< -1 SD (n = 63-64)		-1 to 0 SD (n = 90-91)		0 to 1 SD (n = 90-94)		> 1 SD (n = 53)	
		Sexual	Violent	Sexual	Violent	Sexual	Violent	Sexual	Violent	Sexual	Violent
PCL-R	r_{pb}	.17***	.36***	.16	.45***	.28**	.57***	.20	.29**	-.10	.01
	AUC	.60**	.70***	.58	.75***	.68**	.83***	.62†	.67**	.43	.51
VRAG	r_{pb}	.19**	.41***	.34**	.52***	.21*	.53***	.17	.38***	-.04	.10
	AUC	.62***	.73***	.71**	.82***	.63†	.80***	.58	.69**	.51	.59
SORAG	r_{pb}	.24***	.40***	.37**	.45***	.28**	.53***	.22*	.40***	.00	.11
	AUC	.66***	.73***	.74**	.79***	.69**	.80***	.65*	.74***	.51	.57
VRAG-R	r_{pb}	.20**	.36***	.33**	.43***	.28**	.47***	.15	.42***	-.08	-.06
	AUC	.63***	.71***	.73**	.78***	.68**	.78***	.60	.74***	.45	.46

note: † $p < .07$; *$p<.05$; **$p<.01$; ***$p\leq.001$

3.6 Phase 2 Results

Cluster analysis was performed on the four PCL-R facets using two sets of procedures to examine the possibility of psychopathic subtypes. One psychopathic participant was removed from the analyses due to a missing facet score (i.e., more than one item missing which precludes prorating) resulting in a sample size of 86. First, hierarchical cluster analysis was performed to identify potential clusters that would emerge. Wards method was used with the squared Euclidian distance measure as the similarity measure to identify the clusters. Based on an examination of the agglomeration schedule, a disproportionately large jump in the magnitude of the agglomeration coefficient value was observed between the first and second clusters, with successively smaller changes in value from three clusters onward, consistent with a two-cluster solution. Following this, k-means cluster analysis was then performed to refine cluster allocation specifying a two-cluster solution. In total, 46 cases were assigned to the first cluster and 40 cases to the second cluster.

The clusters were labeled primary (n = 46) and secondary (n = 40) psychopathy in light of their close parallels to these variants in the cluster analytic literature (see Table 3.16). The primary subtype was characterized as having high scores on all four facets, whereas the secondary group had lower scores on the Interpersonal facet and high scores on the remaining facets. On the clustering variables, the primary subtype scored significantly higher than the secondary subtypes on the Interpersonal and Affective facets, while the secondary subtypes scored significantly higher on the Lifestyle facet and trending towards significantly higher on the Antisocial facet (p = .08). Henceforth, the results of the cluster analysis supported the extant literature and the current hypotheses for the existence of a two-subtype model of psychopathy.

To further explore the RNR implications of the psychopathy subtypes, the two types were compared on validation variables including risk levels, treatment change, and rates of recidivism (see Table 3.17). Overall, the secondary type had marginally higher risk levels and therapeutic change scores, but the differences did not reach statistical significance or substantial effect sizes. Of particular note, the two subtypes did not differ on the treatment specific variables in question, indicating they did not differ in their rates of treatment completion, length of time in treatment, or treatment change. Although upon examination, the secondary variant scored slightly higher on treatment change, with a small effect size. It is possible that the subtypes did not show enough separation on the Affective facet of the PCL-R to have had significantly different treatment

change, due to the Affective facet's link to poorer therapeutic gains, or, that with a larger sample size the power would increase to detect a significant difference.

In terms of diagnostic differences between the groups, secondary subtypes had higher rates of non-substance related Axis I diagnoses and assessments of below average cognitive ability ($p < .075$), with the effect sizes being approximately moderate in magnitude. There were no differences between primary and secondary subtypes on diagnoses of any Axis II disorder, ASPD, or substance use disorder.

Kaplan-Meier survival analyses were performed for the subtypes for sexual, violent, and general recidivism to further explore any differences in the survival curves between them. The difference between the survival curves for sexual recidivism was not significant (primary recidivism rate= 34.8%, secondary recidivism rate= 37.5%) (see Figure 3.15), but the difference trended towards significance for violent recidivism ($\chi^2= 3.21$, $p= .07$) with the secondary subtype violently reoffending at a rate of 87.5%, compared to the primary at 71.7% (see Figure 3.16). Finally, the difference was significant for general recidivism ($\chi^2= 4.07$, $p<.05$), with the secondary subtype failing at faster and higher proportions at 95.0% versus 80.4% for the primary subtypes (see Figure 3.17).

Thus, there appears to be support for the primary/secondary subtypes of psychopathy, however, in the current sample, the two subtypes did not differ significantly in terms of their risk and response to treatment. Consistent with past findings, secondary psychopathy trended toward higher rates of non-substance related mental disorder and below average cognitive ability (Skeem et al., 2007). Finally, the secondary subtype did appear to violently and generally recidivate at slightly higher rates than the primary type, possibly attributed to general antisociality reflected in their marginally higher Antisocial facet scores.

Table 3.16

Final Means on PCL-R Clustering Variables

PCL-R Facets	Subtypes (M, SD)		t	d
	Primary (n = 46)	Secondary (n = 40)		
Interpersonal	5.49 (1.19)	2.25 (1.16)	12.74***	2.76
Affective	7.02 (.93)	6.15 (1.35)	3.52***	.76
Lifestyle	7.64 (1.65)	8.33 (1.14)	2.21*	-.48
Antisocial	7.87 (1.62)	8.43 (1.26)	1.76†	-.38

note: † $p = .082$; * $p < .05$;** $p<.01$; *** $p \leq .001$

Table 3.17

Psychopathic Subtypes Compared on Validation Variables: Risk Measures, Treatment, and Recidivism

Measures	Subtypes (M, SD or %)			
	Primary	Secondary	t or χ^2	d
VRAG	19.96 (7.40)	20.75 (4.02)	0.60	.13
SORAG	28.50 (8.41)	30.15 (5.66)	1.05	.23
VRAG-R	29.63 (12.78)	32.88 (7.11)	1.43	.31
VRS-SO Static	11.43 (3.67)	11.88 (3.44)	0.57	.13
VRS-SO Dynamic Pre	29.62 (7.27)	30.06 (7.23)	0.28	.06
VRS-SO Dynamic Post	27.75 (7.62)	27.55 (7.46)	0.12	.03
VRS-SO Total Pre	41.06 (9.47)	41.94 (9.63)	0.43	.09
VRS-SO Total Post	39.18 (9.72)	39.43 (9.66)	0.12	.03
VRS-SO Txt Change	1.88 (2.31)	2.51 (2.43)	1.24	.27
Txt Length (months)	7.81 (3.67)	7.63 (2.91)	0.24	.05
Txt noncompletion	.28 (.46)	.33 (.47)	0.18	.11
Sexual Recidivism	34.8%	37.5%	0.07	.06
Violent Recidivism	71.7%	87.5%	3.21†	.39
General recidivism	80.4%	95.0%	4.07*	.44
Axis I disorder	21.7%	40.0%	3.38†	.40
Axis II disorder	89.1%	92.5%	0.29	.14
Antisocial PD	80.4%	82.5%	0.60	.08
Substance use disorder	60.9%	62.5%	0.02	.04
Below average cognitive ability	24.1%	50.0%	3.49†	.56

note: † $p < .075$, * $p < .05$; for cognitive ability, n = 49

Figure 3.15

Survival Analysis: Cumulative Proportion of Sexual Recidivism Failure Rates as a Function of Psychopathy Subtype

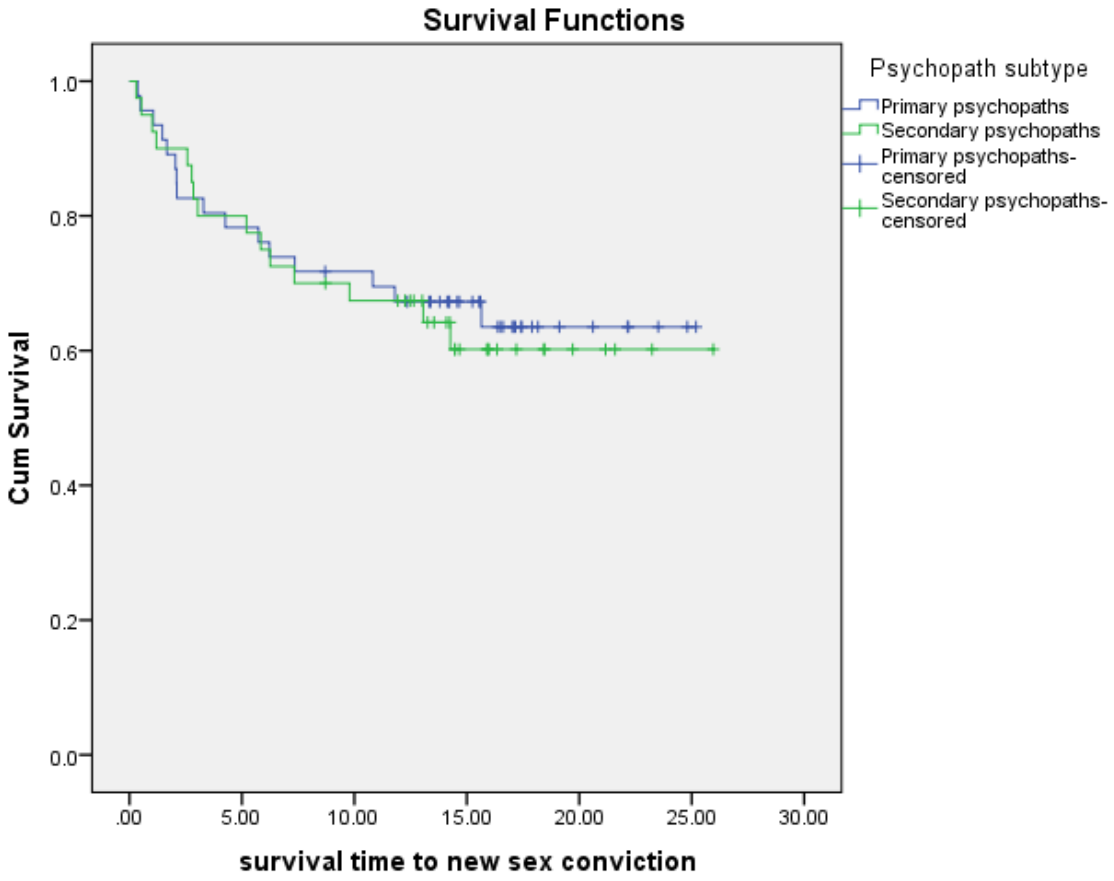


Figure 3.16

Survival Analysis: Cumulative Proportion of Violent Recidivism Failure Rates as a Function of Psychopathy Subtype

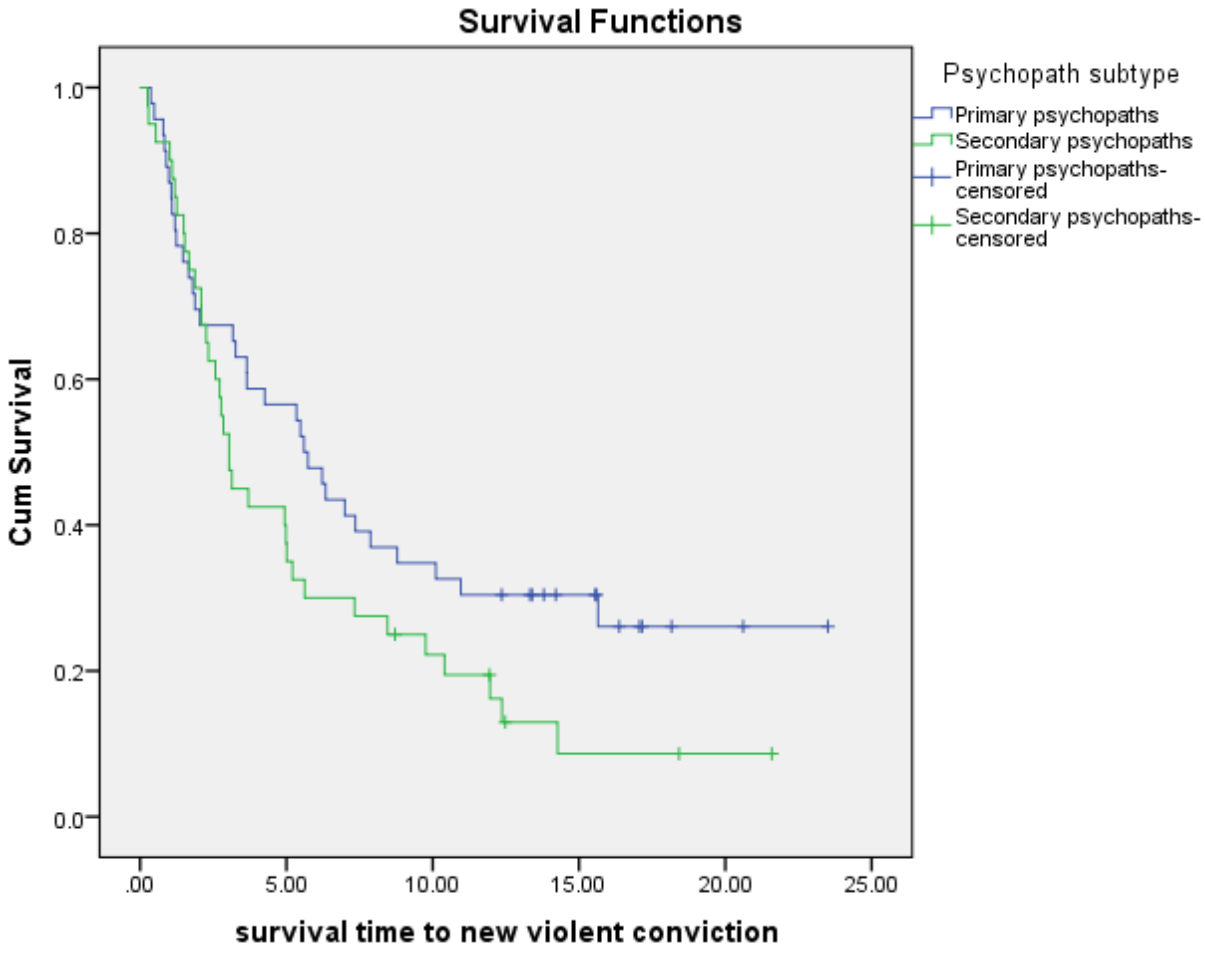
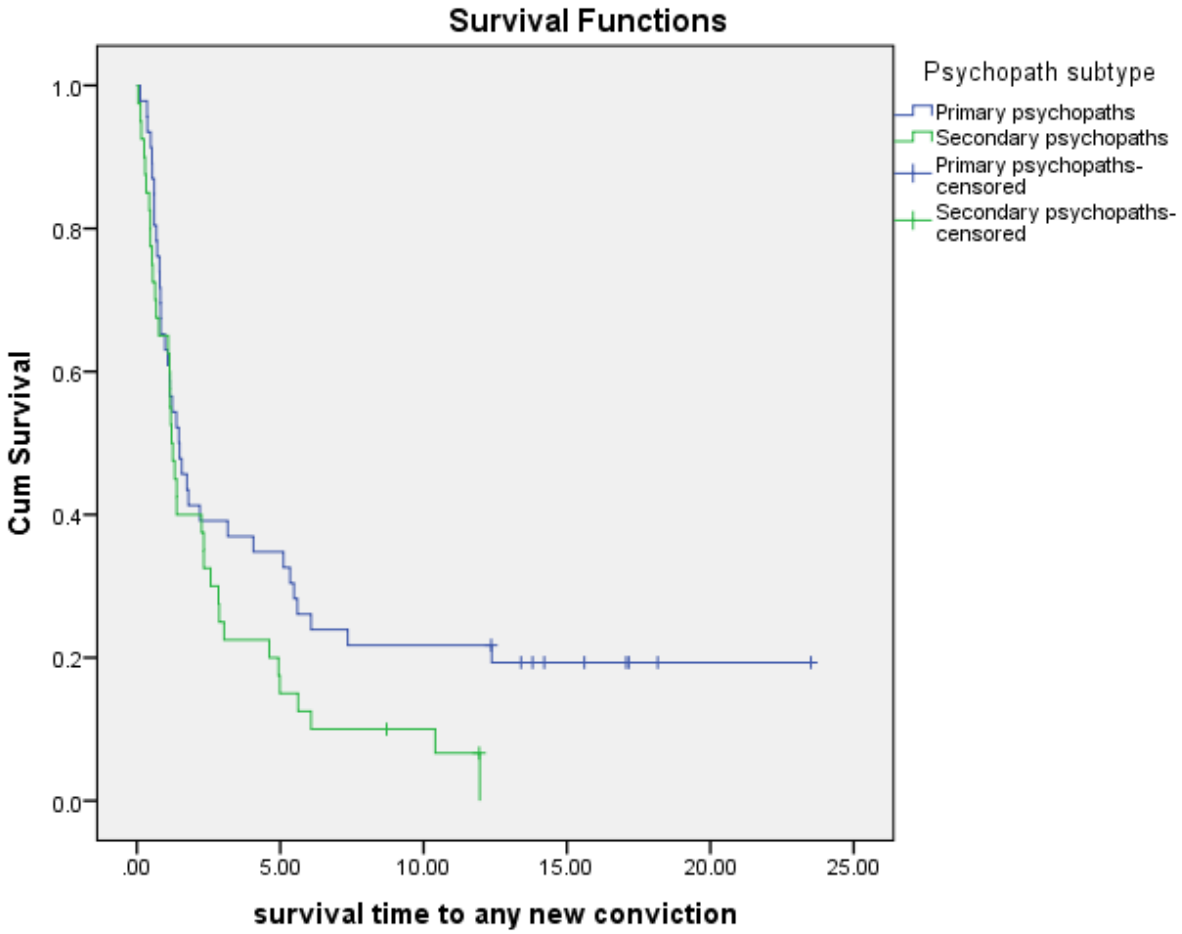


Figure 3.17

Survival Analysis: Cumulative Proportion of General Recidivism Failure Rates as a Function of Psychopathy Subtype



3.7 Phase 3 Results

The third and final phase of this program of research examined several evolutionary hypotheses linked to psychopathy. Insufficient information was available to compare psychopathic versus nonpsychopathic offenders on many variables indicative of neurodevelopmental insults, victim characteristics for violent offenses, or on aggressive incidents towards staff and other treatment interfering behaviors. Nonetheless, information was available on the presence of psychiatric diagnoses, of which Axis I disorders could be more indicative of developmental disturbance, as well, mention on file pertaining to broad appraisals of cognitive ability was present for some offenders, but validated assessments of cognitive functioning were unavailable. The offenders did not, however, differ significantly in rate of Axis I disorders, nor on lower cognitive ability (see Table 3.18).

The offenders were compared on a number of variables related to mating strategy, i.e., characteristics of sexual offense victims (see Table 3.19). The analyses were stratified by victim gender as in principle, most of these relationships should be found for men with female victims only since it confers no adaptive benefit to sexually victimize males. Among men with female victims only, psychopathic offenders were significantly younger at the time of their first sexual offense conviction($\chi^2 = 4.40$, $p<.001$). Further, psychopathic offenders, on average, had significantly more sexual offense victims over the age of 14 and unrelated at $p<.05$. On the other hand, nonpsychopathic offenders had significantly more related victims ($p<.05$), and trended towards more child victims ($p<.10$). Finally, psychopathic offenders had a non-significantly larger percentage of stranger victims, compared to nonpsychopathic offenders. When the aforementioned analyses were repeated on men with any male victim the only significant different to emerge was that psychopathic offenders had a younger age at first sexual conviction.

In table 3.20, PCL-R total, factor, and facet scores were correlated with the mating strategy variables. Higher PCL-R total scores were significantly related to more victims over the age of 14 ($p<.001$), less victims under the age of 14 ($p<.01$), more stranger and unrelated victims ($p<.05$), and less male victims ($p<.05$). Upon closer examination, it appeared that Factor 2 and its constituent facets were responsible for the relationship of the PCL-R total score with the mating strategy variables. Thus, the psychopathic lifestyle and criminal versatility were more strongly correlated with variables indicative of a successful mating strategy than the more classic psychopathic personality variables.

Table 3.18

Psychopathic and Nonpsychopathic Comparisons on Diagnostic Variables

Diagnosis	Psychopathic (%)	Nonpsychopathic (%)	χ^2
Axis I disorder	29.9	33.5	0.37
Axis II disorder	90.8	68.4	16.42***
Antisocial PD	81.6	46.0	31.84***
Substance use disorder	62.1	44.7	7.52**
Below average cognitive ability	34.7	37.2	0.09

note: ** $p<.01$; *** $p \leq .001$

Table 3.19

Psychopathic and Nonpsychopathic Comparisons on Adaptive Variables as a Function of Victim Gender

Variable	Female victims only (n = 246-255)					Any male victim (n = 42-47)				
	Psychopathic		Non-psychopathic		χ^2 or *t*	Psychopathic		Non-psychopathic		χ^2 or *t*
	M (SD)	%	*M* (SD)	%		*M* (SD)	%	*M* (SD)	%	
Age first Sex Offense	22.7 (6.3)	-	27.1 (9.1)	-	3.80***	23.9 (9.1)	-	30.8 (9.7)	-	2.14*
Any victim > 14	-	91.8	-	77.1	7.31**	-	41.7	-	31.3	0.42
Any victim < 14	-	27.8	-	39.2	2.90†	-	91.7	-	93.8	0.06
Any unrelated victim	-	97.3	-	87.2	6.12*	-	100.0	-	91.4	1.10
Any related victim	-	9.3	-	25.0	8.00**	-	41.7	-	22.9	1.58
Any stranger victim	-	56.2	-	45.7	2.27	-	33.3	-	16.7	1.41

note: †$p < .10$; * $p < .05$; **$p < .01$; ***$p < .001$

Table 3.20

Correlations between the PCL-R and Adaptive Variables

PCL-R	Biological Children	Unrelated Victim	Stranger Victim	Victim Age < 14	Victim Age 14+	Male Victims	Female Victims
Total	.00	.16**	.14*	-.16**	.20***	-.11*	.00
Factor 1	.04	.12*	.04	.00	.07	.11	.05
Factor 2	-.06	.14*	.16**	-.24***	.25***	-.24**	-.06
Interpersonal	.00	.12*	.05	.01	.02	.15**	.06
Affective	.05	.11	.01	-.02	.10	.06	.02
Lifestyle	-.09	.06	.12	-.16**	.14*	-.19**	-.07
Antisocial	-.01	.19**	.16**	-.27***	.29***	-.23**	-.04

note: * $p < .05$; ** $p < .01$; *** $p \leq .001$

3.7.1 The Life History Profile

To further explore the evolutionary hypotheses, a Life History Profile (LHP) was created wherein one point was given for the presence of the following variables: biological child, unrelated female sexual offense victim, and female sexual offense victim of a reproductively viable age. Higher scores on the LHP were indicative of successful adaptive strategies (i.e. reproducing genes through biological children and sexually targeting victims who are capable of such reproduction). The PCL-R and its factors and facets were correlated with the LHP to examine which traits were related to these successful mating strategy markers (see Table 3.21). Total PCL-R and Factor 2 were significantly correlated with higher LHP scores at the $p<.001$ level, the Antisocial facet was correlated at the $p<.01$ level, and Factor 1 and the Affective facet at $p<.05$. Multiple regression was conducted to examine the unique contributions of the PCL-R components to predicting LHP score. Although Factor 1 and 2 jointly predicted LHP profile $R = .21$ F (2, 245) = 5.76, $p < .01$, only Factor 2 uniquely predicted the LHP profile. Similarly, the four facets significantly predicted LHP score overall, $R = .28$, F (4, 242) = 5.01, but only the Antisocial facet was a significant unique predictor.

Furthermore, psychopathic offenders (M=2.50, SD=.77) scored significantly higher than nonpsychopathic offenders (M=2.25, SD=.56) on the LHP (t(292)=2.52, $p<.05$). The primary and secondary subtypes (female victims only) were also compared on LHP scores to determine if the subtypes differed on the adaptive markers. The primary scored slightly higher (M=2.58, SD=.50) than secondary (M=2.40, SD=.60), but it did not reach statistical significance (t(71)= 1.38).

Finally, the predictive validity of the LHP was examined, along with its relationship to treatment relevant variables. The predictive validity of the LHP was examined through the AUC. The LHP failed to significantly predict sexual recidivism (AUC= .50, 95% CI= .43-.58), violent recidivism (AUC= .51, 95% CI= .44-.58), or general recidivism (AUC= .54, 95% CI= .46-.62). In terms of treatment variables, the LHP was not significantly correlated with treatment length, completion, or change (see Table 3.22). That is, markers of reproductive success were not associated with indicators of treatment outcome.

Table 3.21

Associations between the PCL-R and the Life History Profile (with Female Victims Only): Correlations and Regression

Regression model	PCL-R measure	*r* with LHP	β with LHP
	Total	.21***	-
Model 1	Factor 1	.13*	.05
	Factor 2	.21***	.19**
Model 2	Interpersonal	.08	-.02
	Affective	.13*	.09
	Lifestyle	.10	-.10
	Antisocial	.26**	.29***

note: * $p < .05$; ** $p < .01$; ***$p < .001$; N = 249

Table 3.22

Correlations between Life History Profile and Treatment

Treatment variable	*r*
Txt length	.11
Txt completion	-.06
Txt change	.12

note: * $p < .05$; ** $p < .01$

Chapter 4. DISCUSSION

The current research program aimed at furthering our understanding of the etiology and correctional treatment of psychopathy and its relationship to recidivism in a sample of 302 federally incarcerated sexual offenders. The sample consisted of adult male offenders who participated in a sexual offender treatment program at the Regional Psychiatric Centre in Saskatoon, SK, between 1983 and 1997. The program was based on cognitive behavioral, relapse prevention, and RNR tenets. On average, this was a young sample of actuarially moderate to high-risk men, most of whom successfully completed the Clearwater Sex Offender Program and at least half of who were repeat sexual offenders. By and large, there was a low rate of Axis I mental illness and high rates of personality and substance use disorders, which stands in contrast to the population most typically served by the RPC today. The present study took advantage of an unusually long follow-up of nearly 18 years post release to track the men's criminal behavior in the community and to examine clinical and evolutionarily salient hypotheses. Phase one examined the relationship of psychopathy and treatment change to recidivism; phase two examined subtypes of psychopathy and their risk and clinical correlates; and phase three examined evolutionary hypotheses for psychopathy, with implications of psychopathy as an evolved life history strategy. Each phase is elaborated upon in turn, followed by a general discussion.

4.1 Therapeutic Reponses of Psychopathic Offenders: Applications of the RNR model and Links to Recidivism

Over an average of 8 months in the program, the overall sample demonstrated nearly one-third of a standard deviation of change in treatment as operationalized by the VRS-SO. This indicated positive treatment gains and subsequent risk reduction, notwithstanding the presence of psychopathic traits in many of its clientele. The strong inter-rater reliability of independently rated study measures and the predictable patterns of convergence provided support for the integrity of scale ratings and the subsequent quality of the data collected. It further supported the veracity of the conclusions generated from the substantive findings.

Consistent with previous findings, the PCL-R total score, Factor 2, and Lifestyle and Antisocial facets, significantly predicted sexual, violent, and general recidivism at small, moderate to large, and moderate effect sizes, respectively. The PCL-R, on the whole, demonstrated stronger predictive power for violent versus sexual recidivism, as previously found

(Wormith et al., 2007). Concordantly, Factor 2 and its Lifestyle and Antisocial facet scores demonstrated particularly strong convergence with the static and dynamic risk measures, providing further support for the risk-relevance of these domains of the psychopathy construct. As anticipated, Factor 1 and its constituent Interpersonal and Affective facets were comparably weaker predictors of outcome (Lestico et al., 2008; Wormith et al., 2007; Yang, et al., 2010). The VRAG, SORAG, and VRAG-R significantly predicted sexual (small to moderate effect), violent (moderate to large effect), and general recidivism (large effect); a level of predictive validity comparable to that found in the construction samples (Harris et al., 1993; Rice et al., 2013) as well as further cross-validation of the recently developed VRAG-R.

This first set of results situates Factor 1 and 2 within Wong and colleagues' (2012) two-component model of the treatment of psychopathy, wherein the Interpersonal and Affective features serve as general and specific responsivity considerations and the Antisocial and Lifestyle features are criminogenic in origin (see Section 4.5 for a more detailed description of the model). Thus providing support or the utility of the PCL-R factors in highlighting the priorities of service delivery: risk reduction and recidivism prevention through treatment of criminogenic needs while managing responsivity issues.

Consistent with expectations (Olver & Wong, 2006; Serin, 1996), psychopathic offenders did display higher and faster rates of recidivism than their nonpsychopathic counterparts, further highlighting the need for effective violent risk reduction treatment for psychopathy. Unfortunately, psychopathic offenders have been found to drop out of treatment at higher rates than nonpsychopathic offenders (Olver et al., 2011) and in the current sample two-thirds of those who did not complete treatment were indeed psychopathic. That being said, as in prior research on half of this sample (Olver & Wong, 2009), 70% of psychopathic offenders did complete treatment. With the current longer-term follow-up and the more conservative criterion of convictions (as opposed to charges in the smaller previous sample), there were no significant differences in posttreatment rates of sexual and violent recidivism between psychopathic offenders who completed treatment versus those who dropped out. This is consistent with Component 1 and the notion that psychopathic offenders drop out at higher rates and that psychopathic personality traits are no doubt a responsivity issue in terms of retention.

Although the current findings appear discouraging towards the prospect of effectively treating psychopathic individuals, treatment completion alone does not take into consideration

the degree to which the individual has participated in, or benefited from, the treatment process (Abracen et al., 2008; Olver & Wong, 2009). In other words, not all offenders who complete treatment complete it well. And the current null results would suggest that treatment completion on its own is likely a poor proxy of improvement, especially for the psychopathic individuals. Therefore, it is important to examine beyond that of treatment completion; to the degree to which the offender demonstrated behavioral change during the treatment process (see Polaschek & Daly, 2013). Furthermore, the findings that psychopathy was associated with higher recidivism, regardless of completion, may be influenced by their likelihood of being higher risk in the first place. The current sample replicated past findings (Olver & Wong, 2009) that for sexual recidivism, high risk groups, regardless of psychopathy, recidivated at the highest rate. On the contrary, violent recidivism appeared to be influenced by both risk and psychopathy with both psychopathic risk groups (high and low) recidivating at considerable rates. Therefore, psychopathy may be related to violent but not sexual recidivism, above and beyond risk level.

In examining a measure of treatment change, psychopathic sexual offenders registered significantly less change, similar to findings with violent offenders (Olver et al., 2013). This was captured by the PCL-R Factor 1 and its facets linear inverse relationship with treatment change. That is, the more psychopathic personality traits a participant had, the fewer risk relevant changes he likely made. It is conceivable that such callous and shallow affect traits would contribute to therapist burnout and weaken alliance, while their refusal to accept personal responsibility would lead them to deny the need for behavior alteration in the first place. Such findings would seem to provide further evidence for psychopathy as a specific responsivity concern as per the two-component treatment model. Not only were the psychopathic offenders more likely to drop out of treatment, but they also made less change, and such a pattern does not inspire much therapeutic optimism.

The results of change analyses, however, may generate some hope. The VRS-SO operationalization of change focuses on risk relevant behaviors, such that positive behaviors garner movement along the continuum of change indicating reductions in unwanted offense linked behaviors (e.g., deviant fantasies, cognitive distortions) and increases in the use of pertinent skills and strategies. Thus, it is possible that even among psychopathic offenders, or after controlling for high PCL-R scores, risk-relevant changes are just that – risk relevant – and therefore associated with lower recidivism. Also, the PCL-R was moderately correlated with the

VRS-SO, showing that although there is overlapping shared risk variance, they are not measuring identical constructs. Thus controlling for both psychopathy and baseline risk was warranted.

After controlling for comprehensive baseline risk and treatment change, it was evident that the PCL-R lost most of its explanatory power in contributing to observed differences in base rates of sexual and violent recidivism. The PCL-R was not only statistically irrelevant in predicting violent recidivism after a comprehensive assessment of static and dynamic risk factors and treatment gains were accounted for, but it trended towards predicting lower rates of sexual recidivism. The findings were also in accordance with a recent review of the psychopathy treatment literature that suggested that comprehensive risk measures capturing criminogenic factors are likely more salient in predicting recidivism outcome than psychopathy (Polaschek & Daly, 2013). Finally, there was a robust 8-11% reduction in the hazard of sexual and violent recidivism for every one-point increase in change score when both risk and, more importantly, psychopathy were held constant. This is consistent with past findings in a sample of civil psychiatric patients wherein involvement in treatment, albeit not treatment change per se, independently accounted for risk of violence while controlling for psychopathy, among other factors (Skeem et al., 2002). As well, it further replicated Olver and Wong's (2009) findings that increased treatment change was associated with reduced recidivism regardless of psychopathy or sexual offense risk in a portion of the current sample. These findings culminate to support the two component treatment model wherein if service providers can manage their personal reactions to Factor 1 traits and increase the offender's engagement (as per component 1), then component 2 can incite changes that translate to reduced risk and reoffending.

The current study further extended Olver and Wong's (2009) findings in that there was a sample of psychopathic offenders who were able to demonstrate quantifiable changes during treatment that in turn, lead to sexual and violent recidivism rates that were similar to offenders who were lower in psychopathy. Although the difference between the two psychopathic groups of varied change was not statistically significant, the psychopathic group who made large gains in treatment recidivated at the rates of 18% to 23% less than the psychopathic groups who evidenced little benefit from treatment. A difference that is not negligible by any sense. These findings are similar to previous studies showing that recidivism may not significantly differ between the psychopathic offenders of varied treatment performance, but that there is a group of

psychopathic offenders whose recidivism rates mirror those of less psychopathic individuals following treatment (Doren & Yates, 2008; Langton, Barbaree, Harkins, & Peacock, 2006; Looman et al., 2005; Polaschek & Daly, 2013; Shaw & Porter, 2012). Finally examining the sample as a whole, the PCL-R, VRAG, SORAG, and VRAG-R failed to predict sexual and violent recidivism in the group of offenders who demonstrated the highest treatment gains. Therefore, although psychopathy and static risk were related to violent and sexual recidivism as a whole, for the offenders who benefitted the most from treatment, they seemed to become almost irrelevant. This suggested that psychopathy and static risk might no longer be informative for assessing risk once an offender has made significant gains, thus underscoring the importance of systematically capturing treatment progress through validated dynamic measures. Not to mention supporting the notion that higher PCL-R scores do not guarantee treatment failure.

4.2 Psychopathy Subtypes: Clinical Correlates and Long Term Recidivism

Evidence has been gathering to support the existence of subtypes of psychopathic offenders who display distinct clusters of psychopathic traits. The current cluster analysis converged on a two-cluster model consistent with past conceptualizations labelled the primary and secondary subtype, with some variations in terminology (see Blackburn, 1975; Drislane et al., 2014; Hicks et al., 2004; Karpman, 1941; Mealey, 1995a, 1995b; Mokros et al., 2015; Olver et al., 2015; Poythress et al., 2010; Skeem et al., 2007; Swogger & Kosson, 2007). Consistent with previous literature, the primary subtype was distinguished as having a significantly greater proportion of the classic psychopathic personality traits including callousness, pathological lying, superficial charm, etc. Whereas the secondary subtype was classified as having greater lifestyle behavioral traits including impulsivity, irresponsibility, lack of realistic goals, etc., while also displaying a substantial degree of callousness and lack of empathy. This finding is consistent with Poythress and colleagues (2010) and Skeem and colleagues' (2003) assertions that secondary psychopathy is theoretically associated with impulsivity and should therefore have higher scores on the Lifestyle facet of the PCL-R. In terms of labeling the second cluster as secondary psychopathy as opposed to pseudopsychopathy, Mokros and colleagues outlined the distinguishing traits of psychopathy to be captured by the Affective facet. Consequently, the absence of those traits would indicate an absence of latent psychopathy. Thus in cases where the secondary cluster scores low on the Affective Facet, the term "pseudopsychopathy" would be most appropriate. Therefore, pseudopsychopathy would be an inappropriate label for the

secondary group in the current study due to their high score on the Affective Facet, similar to Olver and colleagues. Essentially, they have a substantial amount of critical affective traits, along with antisocial behaviors.

Further providing tentative support for distinct etiological pathways leading to the primary and secondary distinction (Mealey 1995b), the secondary type trended towards having greater rates of reported Axis I diagnoses and mention of below average cognitive abilities. Thus aligned with the notion that secondary psychopathy reflects disadvantage compared to their primary counterparts. Next, the clinical and RNR implications of the two subtype model were examined by comparing the two clusters on a number of variables including risk levels, treatment change, and rates of recidivism. Upon examination, the secondary subtype had marginally higher risk levels, therapeutic change scores, and rates of violent recidivism, but these differences were not of statistical significance, similar to past findings (Olver et al., 2015). The difference was significant when it came to general recidivism, however, where the majority of the secondary group had reoffended in some fashion by 12 years post release. It is possible that higher Factor 2 facet scores accounted for the substantial recidivism rate for the secondary group. Due to its association with risk this may also imply that sexual offenders whose PCL-R profile reflects that of the secondary subtype are at a very high risk to reoffend in general, even if their risk level is only marginally higher. This high rate of recidivism is particularly concerning when the secondary type demonstrated slightly higher treatment change scores. That being said, the secondary are at a slightly higher risk level to begin with. So slightly higher reduction in risk via treatment change may still leave them at a higher risk level than the primary counterparts.

Overall, the current findings did not fully support the hypothesis that primary psychopathic offenders are less amenable to treatment (Morana et al., 2006), although there was a trend in that direction. It is possible with a larger sample size, that hypothesis would in fact be supported. Ultimately, it appeared that the sample of offenders meeting criteria for psychopathy could be separated into meaningful clusters based on PCL-R facet scores, mirroring those that have been previously found in the literature. It seemed, however, that their clinical significance remains to be unraveled, having similar risk and treatment relevant scores, albeit slightly higher rates of violent and general recidivism and evidence for greater disadvantage in secondary psychopathy. Although the secondary psychopathy had slightly higher rates of violent and

general recidivism and evidence for greater disadvantage, a clear picture of their clinical significance remains to be unraveled.

4.3 Psychopathy and evolution: Adaptive Markers and the PCL-R

Finally, the third phase of the research program aimed to explore evolutionary hypotheses regarding the etiology of psychopathic traits. The psychopathic and nonpsychopathic offenders were compared on a number of variables that had been proposed in previous literature as relevant to uncovering mating strategy (Lalumière et al., 2008). Psychopathic offenders were significantly younger than nonpsychopathic offenders at the time of their first official sexual offence ($p<.001$). This supported the hypothesis that psychopathic men adopt a precocious mating strategy, possibly to expand the timeframe that they are creating opportunities to procreate (Harris et al., 2007; Seto et al., 1997). That being said, Chakhssi and colleagues (2010) found psychopathic offenders to be younger at the time of their first conviction for any offense, not only sexual. So, although a younger age at first sexual offense may indicate precocious mating, it may also reflect the more general behavioral dysregulation, risk-taking, and antisocial characteristic of psychopathy. And indeed, the earlier initiation of sexual offending was significant for male victims as well, which should have little bearing in terms of reproductive concerns but possibly more to do with impulsive sensation seeking.

Psychopathic offenders did however, evidence successful mating strategies by having more female victims of who were unrelated and likely of age to reproduce, while nonpsychopathic had younger related victims. None of those differences were significant for male victims. These findings provided stronger evidence for psychopathy being linked to a more adaptive reproductive strategy. However, the evidence for nonpsychopathic offenders displaying general disadvantage did not bear out, with no differences on variables related to psychiatric disorders or cognitive ability. Therefore, it may be that the theory of two pathways leading to antisociality is more relevant to the two psychopathy subtypes as opposed to psychopathic versus nonpsychopathic offenders. Additionally, the adaptive mating strategy pattern bore out when psychopathy was continuously compared to the outcome variables, suggesting that evolutionarily relevant relationships can occur when psychopathic traits are assessed on a continuum as opposed to requiring an imposed taxonomic approach.

A Life History Profile (LHP) was created to further capture the degree of successful adaptive fitness of the offenders. Although the variables may not have directly assessed the use

of a fast life history strategy, they did capture successful mating. And indeed, overall PCL-R demonstrated a significant linear relationship with the LHP profile. A first glance, it appeared that the affective traits of being emotionally shallow, failing to accept responsibility for one's own actions, and lacking guilt or empathy, along with the antisocial traits of early behavioral problems, and criminal versatility were related to having a more successful mating strategy. The results of regression analyses, however, showed that the interpersonal and affective features of psychopathy only predicted the LHP score by virtue of their shared variance with Factor 2 and its constituent facets; only Factor 2 and the Antisocial facet uniquely predicted the LHP score. These findings are consistent with the PCL-R's relationship to each evolutionary variable individually where the lifestyle and criminal versatility of psychopathy had stronger links to an adaptive mating strategy than the classic psychopathic personality traits. Taken together, these findings support the suggestion by Gladden and colleagues (2008) that traits necessary to adopt a fast life history strategy include callousness, impulsivity, and antisociality in general. Those traits may allow an individual to capitalize on short-term mating opportunities and feel little drive to invest beyond that. The LHP's strong relationship to the Antisocial facet, may have implied it was simply a proxy for risk, however, it failed to significantly predict any type of recidivism. Moreover, the LHP was unrelated to treatment outcomes, failing to support the hypothesis that lackluster treatment effects for psychopathy were the direct result of an evolved etiology.

4.4 General Discussion

Service providers have long considered psychopathic offenders a particularly troublesome group to treat and outlook for their successful rehabilitation has been bleak. Indeed the therapeutic pessimism surrounding psychopathic offenders is somewhat curious considering that the risk and need principles indicates high-risk offenders stand to benefit most from treatment, and psychopathic offenders by nature, tend to be high-risk for violence. Nonetheless, research to-date has only begun to quantitatively examine the validity of this assumption. In the current study, psychopathy was associated with treatment attrition. This was consistent with a prior meta-analysis (Olver et al., 2011), where psychopathy was positively associated with dropout in sexual offender programs, as were responsivity factors such as negative impression management, denial, and anti-treatment sentiment. Each of those responsivity factors seem intuitively linked to psychopathy and would benefit from being addressed early in treatment. In

spite of its links to treatment dropout, many of the psychopathic offenders in the current sample did successfully complete the Clearwater program. The Clearwater program was particularly conscious about responding to responsivity issues, which may have encouraged the psychopathic offenders to engage (Olver & Wong, 2009). Olver and Wong also noted that future programs would likely have success with retention if responsivity issues were appropriately accommodated. It has also been suggested that including successful treatment completion as a court-imposed condition for release from custody may further incentivize treatment completion and decrease the attrition rate (Reid & Gacono, 2000).

Overall, similar to the findings of Olver and Wong (2009) and Lewis and colleagues (2012), the current program of research found that psychopathic sexual offenders can demonstrate quantified changes on dynamic risk factors over the course of evidence informed treatment and those changes translated into reduced risk and lower rates of recidivism. These current findings added to the growing clinical optimism surrounding the potential to successfully rehabilitate at least a portion of psychopathic sexual offenders to reduce their offending (Doren & Yates, 2008; Langton et al., 2006; Looman et al., 2005; Polaschek & Daly, 2013; Shaw & Porter, 2012).

The findings were also consistent with the notion that high criminogenic risk and treatment gains may be more important than psychopathy in predicting recidivism (Olver & Wong, 2009; Polaschek, 2014). In particular, the current study further adds to the growing evidence that the PCL-R is not a robust predictor of sexual recidivism, particularly when controlling for sexual offending risk level and treatment change (Olver & Wong, 2006, 2009). The current study did, however, contrast past findings that the PCL-R was a strong predictor of violent recidivism. Specifically, the current findings found that the predictive validity of the PCL-R eroded when more comprehensive assessment of risk, along with treatment change, were accounted for. This could be taken as support for the benefit of utilizing a specialized risk assessment measures in order to gain an inclusive understanding of the risk and needs of the offender, rather than relying solely on the PCL-R (Edens, 2006). The current findings also support the assertion and demonstrate that predictive power of the PCL-R is less robust than a comprehensive risk profile. Furthermore, it calls in to question the belief that psychopathy in and of itself equates with danger upon release. Also, an offender need not be written off for treatment

due to a PCL-R score. Rather, it may be more therapeutically indicated to conceptualize them as high risk, high need offenders and then monitor sustained progress across numerous settings.

This is not to say that psychopathy is not a clinically useful construct in the correctional setting. The current study found support for the risk relevance of Factor 2 of the PCL-R by its stronger predictive power over Factor 1. Those results supported the idea that assessing the lifestyle and antisocial correlates of psychopathy could inform those particular criminogenic needs. Further consistent with suggestions from Olver and colleagues (2013), the Factor 2 antisocial and behavioral traits were more predictive of violent recidivism in particular, and thus, treatment programs that aim to reduce future violent behaviors should focus on addressing those traits. Assessing the Factor 1 interpersonal and affective traits, on the other hand, could inform specific responsivity concerns, guide possible adjustments for treatment, and alert the treatment providers to the potential for treatment interfering behaviors. Interestingly, prior research had found that Factor 2 had a stronger association with disruptive incidents over Factor 1 in inpatient forensic psychiatric treatment (Hildebrand et al., 2004). Therefore, it may be that overtly threatening or rule violating behaviors are more associated with having greater behavioral correlates of psychopathy, whereas the interpersonal and affective traits of psychopathy are more indicative of poorer engagement and internalization of the treatment material itself.

Thus, adopting the PCL-R within an RNR framework could improve the case conceptualization of the offenders, provide direction for focus and treatment delivery, and possibly alter the negative perception of the "psychopath" to be simply a collection of standard responsivity concerns thereby decreasing provider hopelessness and burnout. Furthermore, it may even be beneficial to consider treatment interfering behaviors traditionally viewed as exclusive hallmarks of psychopathy, to simply be specific responsivity issues that are characteristic of some high risk offenders and should be factored in as standard aspects of quality high intensity treatment programs. Moreover, the current findings extended the following recommendations made by Wong and Gordon (2013) in the treatment of violent offenders to include sexual offenders as well: "The evidence suggests that in treating psychopathic offenders to reduce their risk of violence, one should focus on mitigating their violence-linked criminogenic needs as indicated by [Factor 2] while carefully managing their treatment interfering behaviours that are linked to [Factor 1] characteristics to maintain programme integrity" (p. 465).

The further exploration of psychopathic subtypes was not simply an exercise in semantics. Rather, uncovering subtypes may be directly relevant to increasing the effectiveness of treatment approaches because subtype membership theoretically delineates etiological pathways that may require vastly different treatment approaches (Karpman, 1946). Or at least may call for a different set of responsivity considerations. Evolutionary theory regarding how certain traits are selected for may also inform the etiology of primary and secondary psychopathy. In past theory, primary psychopathy was an adaptive and frequency dependent strategy to increase inclusive fitness, whereas secondary psychopathy resulted from competitive disadvantage wherein selection of those traits occurs in response to specific maladaptive environmental cues (Glenn et al., 2011; Mealey, 1995b;). Those researchers also anticipated that because of this, secondary subtypes would be more responsive to treatment efforts. Indeed, it has been suggested that the relative success of treatment efforts for psychopathic individuals could be accounted for by the presence of secondary psychopathic participants (Skeem et al., 2007).

Replication of the primary/secondary distinction was achieved using the facet scores of the PCL-R (Olver et al., 2015). As per recommendation (Skeem et al., 2003, 2007) external validation of the subtypes was attempted through various risk and treatment relevant variables to determine whether the groups differed on variables that might distinguish them. There was tentative evidence for the secondary type having higher treatment change and recidivating at slightly higher rates as would be anticipated through past conceptualizations (e.g. Mealey, 1995b). The difference between the primary/secondary variants on treatment gains however, did not reach significance and thus the relationship remains unclear. Therefore, the subtype distinction may account for slight variability in recidivism but it is less clear if it is relevant to change variability as previously suggested (Mealey, 1995b; Olver et al., 2015; Skeem et al., 2007). It is possible that the two subtypes did not vary enough on the Affective facet, which is most linked to treatment change, in order to sufficiently vary in overall performance.

The current findings did support psychopathy overall being linked to adaptive markers, in particular those related to mate selection and reproductive success. These findings further call to question the notion that psychopathy is fundamentally based in deficits, but rather, it may reflect a fast life history strategy aimed at increasing the individual's inclusive fitness. The subtypes, however, did not differ significantly on those markers. Interestingly, the relationship with the adaptive markers was largely accounted for by Factor 2 and the Antisocial facet, rather than the

psychopathic personality itself. So unexpectedly, it appears that adaptation and criminality may be linked in psychopathic offenders. This would then theoretically link secondary, not primary psychopathy with an adaptive strategy. Regarding the subtypes though, they did not differ in their relation to adaptive markers. Moreover, the presence of a greater number of adaptive markers, or stronger evidence of adaptation however, further failed to account for the treatment effect. Thus, the case for psychopathy in general being treatment resistant on account of fundamental etiological differences (Harris & Rice, 2006) was unsupported by the current program of research. This could reflect that although psychopathic traits may have evolved via selection pressures, human brains also evolved a plastic cortex from which conscious behavioral change is made possible.

A possible critique of exploring the adaptation of psychopathy in a prison sample could be that it essentially involves studying a sample of less successful individuals. This in turn could be interpreted as a more disadvantaged population to begin with. That being said, from an evolutionary standpoint, incarceration does not necessarily negate reproductive success or impede on the passing of genes to the next generation, both of which are primary goals of evolution. From a broader perspective, incarceration may also not equate to failure considering that one offender may be caught for a very small proportion of crimes committed, compared to another who is apprehended for the vast majority of their crimes (Aharoni & Kiehl, 2013). In reality then, the success rate of the former offender may be considered actually quite high. Aharoni and Kiehl noted that the traits of psychopathy themselves may both increase likelihood for successfully evading detection through the ability to manipulate one's way out of trouble, or decrease it through rash and impulsive behaving. Those researchers found that moderate to high levels of psychopathy were associated with greater criminal success (the proportion of self-reported undetected crimes and total crimes committed) after controlling for a measure of impression management. Factor 2 was largely responsible for the relationship, suggesting that such traits as impulsivity and criminal versatility may simply put the individual in more criminal situations for which to go undetected, rather than criminal masterminds pulling off a plethora of "perfect crimes". The authors concluded that the variation in success related to psychopathy indicated that, "it may be overly restrictive to conceptualize incarcerated samples as categorically unsuccessful at crime" (p. 642) and also that psychopathy may be more functional than dysfunctional (Aharoni & Kiehl, 2013). That being said, these findings also point out the

limitation of utilizing official reconvictions as a proxy for reoffending because, for psychopathic individuals in particular, an unknown amount of criminal acts likely go undetected.

4.4.1 Is intelligence a relevant moderator?

A question that would naturally follow is whether the disparate rates of detection between psychopathic and nonpsychopathic offenders are a result of a moderating variable, such as intelligence. In fact, it could be that psychopathic offenders do not change at all in treatment, but rather apply their superior intelligence to reduce future detection more aptly than the nonpsychopathic group. Furthermore, it does remain possible that an inherent disadvantage of utilizing an offender population to examine evolutionary hypotheses, is that apprehended offenders may not be evidencing the most adaptive of strategies. In fact, they may have more deficits, particularly in the cognitive domain. Therefore, it is worth exploring the literature regarding the relationship of intelligence to psychopathy and recidivism, to supplement the null results from nonspecific mention of cognitive ability that was available for a portion of the current sample.

Overall, researchers have often failed to find significant differences in intelligence between psychopathic and nonpsychopathic offenders (Hare, 2003; Hart, Forth, & Hare, 1990), similar to the current findings. Certainly, initial conceptualizations of psychopathy included superior intellect (Cleckley, 1941), but psychopathy has also been established as a robust predictor of criminal behaviour, which is linked to lower intelligence, verbal in particular (Johansson & Kerr, 2005). In his classic work, Heilbrun (1979) explored the relationship between psychopathy, impulsive or violent crime, and intelligence, finding that psychopathic offenders with lower intelligence were more impulsive and violent compared to nonpsychopathic offenders. The psychopathic offenders with higher intellect, on the other hand, did not evidence greater impulsivity or violence. Heilbrun (1982) further proposed that heterogeneity in psychopathy could in part be explained by intelligence, specifically involving the cognitive capacity for empathy and impulse control. He suggested that psychopathic offenders with below average intelligence would have inherently deficient abilities to empathize with others and control violent impulses, thus increasing their risk for future violence. Whereas highly intelligent psychopathic individuals would have the cognitive capacity to understand another's experience and thus would be more likely to display sadistic proclivities where they intentionally inflict pain on another for their own arousal. However, in a large American sample of 674 adult male

offenders, there was no interaction between psychopathy and intelligence in the prediction of violent offending (Walsh, Swogger, & Kosson, 2004). Those authors did find that intelligence increased the predictive power for violent recidivism for Caucasians, but not for African Americans and thus, the impact of intelligence may be influenced by ethnicity.

More recently, in the previously mentioned study examining criminal success, Aharoni and Kiehl (2013) found that a measure of IQ was not significantly associated with criminal success or with PCL-R scores, suggesting that IQ was not only unrelated to psychopathy but also not driving the successful evasion of detection. Johansson and Kerr (2005) further argued that violent offending has been most strongly linked to low intelligence, as has psychopathy, so in theory, psychopathic violent offenders should actually have rather low intelligence. Overall, Johansson and Kerr utilized a large Swedish sample of violent offenders and they found that psychopathic offenders (PCL-R score greater than 30) and nonpsychopathic offenders did not differ on a measure of general, verbal, reasoning, or visuospatial intelligence. They did however, find that for psychopathic offenders having high intelligence was linked to more problematic behaviour while institutionalized and more severe criminality in general, but the opposite was the case for nonpsychopathic offenders (high intelligence was linked to prosocial behaviour). These findings suggested that intelligence may have been associated with poorer treatment change and higher recidivism in psychopathy for the current sample, as opposed to more effective manipulation and evasion of detection. Furthermore, Johansson and Kerr speculated that the relationship between higher psychopathy, higher intelligence, and higher criminality was another indication that psychopathy may not be born out of deficits. In other words, even though they may be more intelligent, their violence would still be explained in part by adaptation. The current findings supported this in that "failed psychopathy", those who had been apprehended, had greater intelligence and was less indicative of deficit. So their violent behaviour may be better explained by adaptation.

That being said, it is possible that overall correlations with PCL-R and intelligence are not significant because of differential associations with the factors and facets. In a sample of German offenders, Factor 2 and more precisely the Lifestyle facet, had the only significant association with intelligence and it was in the negative direction (Heinzen, Köhler, Godt, Geiger, & Huchzermeier, 2011). The authors further found that high scores on Factor 2, regardless of Factor 1 scores, demonstrated the lowest intelligence, lower than nonpsychopathic offenders. In

an American offender sample, on the other hand, the Interpersonal and Antisocial factors were positively related to intelligence, whereas the Affective and Lifestyle facets showed a negative association with intelligence (Vitacco, Neumann, & Wodushek, 2008). This may suggest that intelligence is most relevant for the subtype findings of the current study, wherein secondary psychopathy may be linked to lower intelligence. This would be consistent with the theoretical underpins of secondary psychopathy resulting from competitive disadvantage. Overall, however, the hypothesis that psychopathy is linked to higher intelligence does not seem to be the case and is likely not a driving force behind the current findings. Nevertheless, the potential influence of intelligence on the current findings remains conjecture because validated assessments of intelligence were not available for the participants in the current program of research.

4.5 Possibilities for the Effective Treatment of Psychopathy

With the current findings providing further support for the treatability of some psychopathic offenders, it is worth exploring in more detail ideas for effective treatment programs. Some researchers suggested that we might benefit from developing treatment interventions that are designed specifically for psychopathic individuals (Reidy et al., 2013). As previously mentioned, Wong and colleagues (2012) did just that by delineating a proposed two-component model for the violence reduction treatment of psychopathy. The authors recommended a flexible delivery of an Interpersonal Component, corresponding to Factor 1 and a Criminogenic Component, for Factor 2. The idea being that more or less focus can be made on either component depending on the proportion of psychopathic traits in the individual offenders. The Interpersonal Component was designed to address the specific responsivity and treatment interfering behaviors associated with Factor 1 traits. Wong and Gordon (2013) elaborated by encouraging a step-based approach to allow new knowledge to be built upon and idiosyncratic responsivity issues to be addressed, while incorporating ample time for developing the therapeutic alliance and employing motivational interviewing to increase engagement. Particular importance would be placed on the development of the therapeutic alliance and encouraging cohesion and feedback within the treatment team. Wong and colleagues described the Criminogenic component as targeting the behaviors linked with criminality through best-practice approaches such as skill-based psychosocial modalities. The authors noted that this model is consistent with preexisting correctional treatment programs that adhere to the RNR principles, but were not necessarily designed specifically with psychopathy in mind.

Wong and Gordon (2013) also outlined the tenets to a successful program for reducing violence in medium to high-risk violent offenders. They stressed the importance of sufficient training in the program's philosophy for both facilitators and additional staff who have significant interaction with the offender. Abracen and colleagues (2008) also suggested that treatment providers should receive ample training in psychopathy and sexual offending, alongside the components of the treatment approach itself. Wong and Gordon noted that this encourages all staff to participate in providing treatment through modeling prosocial behavior, reinforcing positive behaviors of the offenders, and in creating an overall environment that is consistent with the rehabilitative milieu of the program. Although their treatment program was designed for violent offenders, its components would likely be successful if adapted to address the specific criminogenic needs of psychopathic sexual offenders. For example, Abracen and colleagues highlighted the importance of exploring the incremental value of treating sexual deviance and substance abuse to reduce recidivism in psychopathic sexual offenders. More generally, lengthier treatment could also lead to greater skill development with psychopathic offenders (Harkins et al., 2012). Finally, due to the trait nature of psychopathy, a program that involves lengthy follow-up focusing on maintaining change and relapse prevention may be of utmost importance (Felthous, 2011).

Due to the slight observed differences in treatment change between primary and secondary offenders in the current study, it is worth considering possible treatment recommendations for the different variants. In reviewing psychopathy subtype literature, Skeem and colleagues (2003, 2007) hypothesized that secondary psychopathy may be more amenable to traditional treatment approaches based on their pathology, but that primary psychopathy may require creative and alternative approaches, such as providing socially sanctioned opportunities to achieve their goals and seek sensations through risky behavior (Mealey, 1995b). Based on findings in an undergraduate sample, researchers had hypothesized that primary psychopathy has a greater association with positive emotions and lack of distress or insight, reducing their likelihood of engaging in treatment (Del Gaizo & Falkenbach, 2008). Meanwhile secondary psychopathy would be associated with negative emotions, including anxiety, guilt, and distress, therefore increasing their motivation to engage in treatment. This could bear weight on the importance of identifying subtypes on both primary/secondary dichotomy, and on levels of distress or anxiety, while comparing their responses to treatment. Since primary psychopathic

individuals do not experience internalizing emotions such as anxiety and guilt that would regulate their behavior for the prosocial world, it could be more challenging to alter their behavior (Mealey, 1995b). However, Mealey noted that treatment might incite behavior change if it attends to variations in mood in response to perceived success or failure, such as those of anger or optimism. Finally, although the current study did not include a measure of anxiety to delineate the different psychopathic subtypes, past researchers have suggested that the increased anxiety and childhood trauma for the secondary type should be specific responsivity considerations for treatment as well (Poythress et al., 2010).

A number of suggestions have been made that think outside of the correctional treatment approach box. For example, if psychopathy involves adopting a strict cost-benefit approach to decision-making, then violence reduction efforts may have to occur at a societal level where deception and defection are reliably, promptly, and frequently detected and punished (Mealey, 1995b). Reid and Gacono (2000) suggested that the inconsistent rate at which the judicial system apprehends and punishes offenders for their criminal behavior might act to encourage criminality in psychopathic offenders. Moreover, they noted that when considering treatment of personality disorders, the flexibility of the clinician is of utmost importance, but this may not be the case for psychopathic offenders. In fact, the authors drew from operant conditioning and suggested that a rigid and consistent approach would be ideal for this population so as not to allow for rationalization and manipulation. The treatment programs based on that approach would also include providing positive and negative reinforcements consistently across all service providers and correctional staff in altering the problematic behaviors. Indeed, a treatment program for incarcerated adolescents with psychopathic traits found that daily monitoring of treatment behavior and the immediate alteration of rewards accordingly, led to improved institutional functioning and even reduced psychopathic personality traits (Caldwell et al., 2012). That being said, one must question the practical feasibility of coordinating all staff within a correctional facility to consistently apply the same behavioral strategy for each offender. Reid and Gacono further maintained that the core traits of psychopathy are so immovable that intervention should also contain work with families to support them through being repeatedly hurt and taken advantage of by the psychopathic family member.

Others have gone so far as to suggest that the difference between criminal psychopathy and so called ‘successful psychopathy’, one who say capitalizes on their manipulative and

charming abilities to succeed in the business world, is that of circumstance (Smith, 1999). Smith argued that if the two are fundamentally the same, with the exception of socio-economic status, the treatment efforts for the psychopathic criminal should mirror an occupational apprenticeship to foster those traits that prove beneficial in the corporate world. Although there are clear ethical considerations around encouraging the cultivation of interpersonal manipulation abilities, there may be merit in acknowledging the strengths that psychopathic traits can bestow on the individual and fostering the prosocial expression of them. As well, occupation is a criminogenic need and should be addressed if relevant to the individual. Finally, many have suggested that identifying and directing treatment efforts on high-risk adolescents with significant psychopathic traits may be the best proactive and preventative method for reducing future offending (Caldwell et al., 2012; Lee, 1999; Manders et al., 2013).

A critique of the psychopathy treatment literature is that being concerned with violence reduction alone is akin to viewing the problem with tunnel vision. Researchers point out that the literature on treatment surrounding psychopathy and Antisocial Personality Disorder focuses mainly on altering behaviors deemed problematic, such as violence or criminal offending, without attempting to address the personality disorder that results in the behaviors in the first place (Gullhaugen & Nøttestad, 2012; Reid & Gacono, 2000). Wilson and Tamatea (2013) delineated this, as "the goal was to reduce *violence* on a psychopathic group, rather than reduce *psychopathy* in a violent group" (p. 504). Consequently, researchers have pointed to the tendency of the psychopathic treatment efficacy literature to rely on recidivism as a prime outcome variable, rather than the alteration of core psychopathic traits (Gullhaugen & Nøttestad, 2012). And indeed, the current program of research has done the same.

In terms of the concerns of the criminal justice system though, the presence of psychopathic personality traits following treatment does not necessarily have bearing on the offender's legal rights or responsibilities. Certainly, having psychopathic traits in and of itself is not illegal, whereas criminal and violent behavior is. This would justify the focus of treatment on violent behaviors alone in a correctional setting. That is not to trivialize the interpersonally harmful nature that psychopathic traits can have on others and on the offender himself, but it is to say that lower rates of recidivism as an outcome of treatment should not be trivialized either. Furthermore, it has been suggested that behaviours, such as those that result in reconvictions, are less inherently stable than the personality traits that caused them (Caldwell, et al., 2012) and that

efficient psychopathy treatment would best be served focusing on altering the behavioral correlates associated with violence and aggression and containing the core personality traits (Olver et al., 2013; Wilson & Tamatea, 2013; Wong et al., 2012). And indeed, some have gone so far as to suggest that the psychopathic personality traits are not amenable to treatment at all and thus, the behaviors that result from a psychopathic personality may be the only useful target (Felthous, 2011). Thus, interventions aimed at altering violent behaviour will likely see quicker returns than the more immutable personality traits. That being said, Wilson and Tamatea (2013) found that targeting dynamic needs related to violence also corresponded with change in general personality pathology. Also, change on some VRS-SO items may indicate altered traits not solely related to decreased violence. This gives hope for the possibility that effective correctional-based treatment approaches may inadvertently alter problematic psychopathic personality traits as well. Furthermore, the benefit of reducing reoffending and violent behaviour cannot be overlooked, particularly in terms of preventing the impacts on future victims.

Once again, the current study provided support for the potential of violence reduction treatment of criminal psychopathy. But from a holistic approach, it behooves us to consider treatment regarding the psychopathic personality traits that may not be overtly related to criminality or violence, but are interpersonally destructive and distressing nonetheless. It is conceivable that psychopathy would benefit from being addressed similarly to other personality disorders, particularly those with the more destructive behavioral correlates. Recently, researchers have begun to explore the possibility of adapting a variety of treatment modalities to the psychopathic personality.

Galietta and Rosenfeld (2012), for example, conceptualized treatment of psychopathy from the personality disorder literature and lamented the importance of addressing emotion dysregulation and impulsivity, alongside cognitive restructuring, altering behavior, and teaching anger management skills. Particularly, they insisted that offender treatment often falls short by addressing anger, while ignoring the broader spectrum of emotions. As such, Galietta and Rosenfeld proposed that the source of the behavioral difficulties of psychopathic individuals is consistent with Borderline Personality Disorder (BPD) as outlined by Linehan and colleagues (1999, 2002). Linehan and colleagues suggested that ineffective emotion management and regulation is a result of the combination of biological vulnerability and disadvantageous environment, leading to problematic behavior. Thus, drawing on similar etiological

conceptualizations of psychopathy, Galietta and Rosenfeld suggested that the "gold-star" treatment for BPD, Dialectical Behavior Therapy (DBT) might be a promising treatment to not only reduce recidivism in psychopathic offenders, but also treat psychopathic personality traits. Of note, they referred to psychopathy as a personality disorder, in contrast to the idea that psychopathy may be adaptive, not disordered. Be that as it may, current findings suggest that evidence supporting the adaptation of psychopathy was unrelated to treatment gains. Furthermore, disadvantaged environments were not directly assessed here, so it is possible that the adaptive mating strategy was born out of poor environmental concerns. If this were the case, then Linehan's conceptualization would be fitting. Therefore, considering the possibility of treatment aimed at not only reducing future criminal behavior, but also addressing the interpersonally harmful (albeit legal) psychopathic personality traits is worthwhile, disordered or not.

Galietta and Rosenfeld (2012) outlined the framework for tailoring DBT to psychopathic individuals. Particular emphasis was paid to increasing treatment motivation through techniques akin to Motivational Interviewing (e.g. validation, exploring the positive and negative of changing, etc.). The focus of DBT on self-harm for individuals with BPD is altered to focusing on violent urges or actions, explored through behavioral chain analyses. Further, Galietta and Rosenfeld acknowledged the toll that treatment interfering behaviors and countertransference can have on the therapist. Thus, they emphasized the importance of consultation for the treatment provider to process and reframe their reactions to the psychopathic individual, in order to maintain the therapeutic relationship and avoid burnout. Further, they discussed the distinction between validating the emotional response of the psychopathic individual, without giving the impression of validating problematic behaviors, such as aggression. Additionally, skills involving mindfulness, impulse control, problem solving, and acting with compassion towards others were taught in a group setting. Gallietta and Rosenfeld then provided a case example of a psychopathic male who, following the course of DBT treatment, had no official charges or convictions, was involved in a violence-free romantic relationship, and was holding down a steady job at the two-year follow-up time.

Gallietta and Rosenfeld's (2012) approach appears to be relevant for the considerations outlined in the subtype literature. In fact, their conceptualization of the etiology of psychopathy, adapted from Linehan (1999, 2002) was consistent with that of secondary psychopathy. They

further suggested that lackluster treatment effects for psychopathy in general might result from heterogeneity related to the experience of emotion, within those labeled psychopathic. Moreover, Olver and colleagues (2015) posited that violence reduction treatment delivered in a CBT format might be most effective for primary types, whereas addressing emotion regulation strategies may be an important responsivity consideration for the secondary type. Those types of skills are covered in a DBT based program, which may add to the compelling nature of the suggestion to apply DBT techniques to psychopathy within violence prevention programs. Sure enough, Gallietta and Rosenfeld noted that this approach might have greater success with the secondary subtype due to their tendency for emotional dysregulation consistent with the treatment focus, as opposed to the primary type, which are characterized by blunted affect.

The case study presented by Gallietta and Rosenfeld (2012), further suggested that DBT targeting the psychopathic personality, may inadvertently result in positive changes on the central eight risk/need factors outlined by Andrews and Bonta (2010). The authors focused on the utility of teaching emotion regulation skills and moving towards a longer-term rewards system, as opposed to impulsive immediate gratification. Their trial was conducted on an outpatient basis, however, which would provide inherently different environments than inpatient/correctional settings where much treatment for psychopathic offenders is conducted. This may lead to a number of practical challenges in conducting DBT and therapy in general. In particular, Gallietta and Rosenfeld stressed the importance of practicing skills to reduce aggression and violence between sessions. In prison settings however, offenders may be reluctant to practice new skills, when aggressive skills are inherently rewarding in terms of providing a sense of safety and compliance from others. This stresses the importance of not only teaching new skills, but also of altering the reinforcement of specific behaviors. This may be difficult to do in a prison setting, where changing behaviors for the long-term reward of staying out of prison may result in the immediate consequence of feeling vulnerable. Which in turn, according to Gallietta and Rosenfeld, could lead to the secondary expression of anger. Thus, although the authors provided a compelling argument for the application of DBT to psychopathic offenders in an outpatient capacity, there may be a different set of challenges to doing so in a correctional setting but further exploration seems warranted.

Another modality that has recently been explored for altering the psychopathic personality is schema therapy. Schema therapy (Young, Klosko, & Weishaar, 2003) expands

upon cognitive behavioral therapy to address longstanding maladaptive psychological structures and focuses on early developmental experiences, longstanding difficulties, and emotion processing within the therapeutic relationship. In their single case study of treating a psychopathic forensic inpatient with schema therapy, Chakhssi and colleagues (2014) highlighted the potential of increasing treatment motivation and participation through catering to the psychopathic individual's selfishness. For example, the patient was provided the concrete incentive of adding participation in a particular treatment exercise (imagery) that he had previously refused, to his conditions for authorization for a leave. Furthermore, Chakhssi and colleagues noted the utility of then collaborating with the patient to outline the terms of the exercise in order to bolster their sense of control. Although one would have to be cautious that this sort of technique does not become coercive in nature (the authors frame it as a therapeutic boundary), it does circumvent some potential for treatment dropout when the gains are tangible and appeal to the selfish desires of the patient.

Chakhssi and colleagues (2014) utilized reliable change indices to determine treatment change in their study. Following a four-year extensive treatment program involving numerous interventions and schema therapy, they found that the patient's PCL-R score was significantly reduced from pre- to post-treatment (from a score of 28 to 14). This indicated that, although a number of psychopathic traits remained present, they were now at a sub-clinical level. Interestingly, upon examination of the four facets, the Affective facet was the only one that was significantly reduced. Coupled with the current findings, it appears that the Affective facet is related to doing poorly in treatment, but may also be a main treatment target when attempting to alter the personality structure. Additionally, independent coders rated the working alliance and they consistently rated it as relatively positive. The researchers also found that the schema therapy program significantly reduced the patient's maladaptive schemas, and improved his risk-related behaviors, with his post treatment risk assessed as "medium", reduced from "high" at pretreatment. Moreover, at a three-year follow-up post-release, the patient was reportedly living a prosocial life in the community, had yet to relapse with addiction, and had no formal charges or reconvictions.

Although this is based on one single treatment case, it does add evidence in support of a degree of therapeutic optimism with psychopathic individuals. Furthermore, it speaks to the potential for adopting therapeutic approaches that stray from the more traditional cognitive-

behavioral approaches to one that is more focused on interpersonal relationships, early childhood, maladaptive schemas, and emotion (Chakhssi et al., 2014). As well, it speaks to the potential for creating a positive therapeutic alliance with a psychopathic individual. That being said, the intervention described was lengthy (four years) and resource intensive. The practicality of providing that intervention on a larger scale to psychopathic offenders may be unlikely and an inefficient use of limited resources. Nonetheless, these two recent case studies provide interesting directions for the psychopathy treatment field to consider and explore.

4.6 Strengths, Limitations, and Future Directions.

Though definitive conclusions about the treatability of psychopathic sexual offenders requires continued replication and investigation, the current program of research adds to the growing optimism about the potential for some to make meaningful risk related changes, similar to their nonpsychopathic counterparts. Abracen and colleagues (2008) and Polaschuk and Daly (2013) reviewed the literature on the treatment of psychopathy and outlined a number of methodological implications that were considered in the current study, including using a well established and reliable measure to assess psychopathy, along with validated risk measures, assessing the impact of an empirically supported RNR based treatment approach on recidivism, while using a standardized measure for change in an large sample of offenders, and examining a lengthy follow-up period. Furthermore, to assess the implications of psychopathic traits, one had to meet criteria for psychopathy, as opposed to previous research studies that had included a diagnosis of Antisocial Personality Disorder, thus conflating the two separate, albeit related, constructs. Chakhssi and colleagues (2010) recognized that psychopathic individuals are, by nature, adept at manipulation and thus, may be able to convincingly feign improvement throughout the treatment program. Thus, they stressed the importance of implementing long-term follow-up periods to assess the genuineness of changes, as those who may be "faking" for the duration of the treatment program would be less likely to continue the charade over many years post-release. In a moderately psychopathic sample such as this, such considerations are particularly salient and underscore the importance of examining long-term outcomes.

The PCL-R was chosen to measure psychopathy because of its dominance within the field of forensic research. The strengths to using this tool are that it provided a valid and reliable measure of psychopathy and because of its frequent use in research, it allows for ease of integration of findings (Lalumière et al., 2008). The PCL-R is considered the "gold-standard" for

assessing psychopathy, however, because of its predominance in the treatment literature, the construct of psychopathy itself is often reduced to that which is measured by the PCL-R (Polaschek & Daly, 2013). Polaschek and Daly pointed out the flaws of this reasoning in that the PCL-R is one measurement of a larger construct and that our understanding of the treatment of this construct may be limited by relying solely on this instrument. Furthermore, although it has been demonstrated that PCL-R can be reliably scored with significant file information available, one cannot be certain what significant information may be missing and could alter the scores (Edens, 2006; Serin, 1993). Replication of the current findings using other validated measures of psychopathy would be useful to differentiate whether the findings are specific to psychopathy or simply to what the PCL-R measures. It would also provide insight into the etiology of psychopathy and the subsequent treatability of it. Further replication across the lifespan would also shed light on the consistency of the findings with young offenders and older adults.

On the whole, this project was an exploration of criminal psychopathy, and as such, lower recidivism rates as a treatment outcome were an integral part of the picture. For that reason, reconviction rates from CPIC provide a comprehensive outcome measure. Nevertheless, utilizing official reconviction rates as a proxy for reoffending also has the potential for underestimating offending post-treatment because it does not capture the indiscretions wherein the individual is not apprehended. This could have particular bearings where psychopathy research is concerned because of possible variability in proportion of their crimes that are detected. That being said, the direct assessment of treatment change provided a valuable outcome measure in addition to recidivism (Polaschek, 2014). Nonetheless, additional outcome variables (e.g. overall change in PCL-R facet scores) should be explored. It may be particularly important to target the reduction of the personality traits in light of the past findings that the Factor 1 traits of psychopathy may be more strongly associated to violence in samples that are highly psychopathic (Olver et al., 2013). Therefore, it will be important moving forward to continue to explore treatment possibilities for the psychopathic personality traits, perhaps through integration of DBT or schema therapy, in order to best address the needs of these individuals (Polaschek, 2014)

Future exploration into the possible factors responsible for differences in treatment change is important because many psychopathic offenders failed to demonstrate appreciable gains. It may be beneficial to start by teasing apart the impact and cause of variability on the

Affective facet of the PCL-R due to its link with treatment change. Furthermore, there were a number of psychopathic individuals who were both of high risk and who made treatment changes, yet still recidivated upon release. It may be possible that the average length of eight months for the treatment program was simply not a large enough dose to sufficiently address the needs of the psychopathic offenders who did not benefit from treatment (Wong & Gordon, 2013). Therefore, although the current findings carry a certain degree of optimism towards the successful harm reduction of some psychopathic offenders, clearly more strides need to be made to determine what factors influence a psychopathic offender to engage with treatment in the first place and to refrain from offending upon release.

Another important limitation of the current study is the lack of a no treatment control group, leading the conclusions to speak more to psychopathy as a predictor of treatment change, as opposed to the overall efficacy of treatment (Reidy et al., 2013). That being said, researchers have made strong cases for the value of "high-quality, quasi-experimental designs" (Polaschek & Daly, 2013, p. 597) in incrementally adding to our understanding of the response of psychopathic offenders to treatment and the subsequent lower rates of reconviction. Furthermore, in their summary of psychopathy treatment literature, Abracen and colleagues (2008) noted that randomized control studies often neglect ecological validity and reduce adherence to the specific responsivity principle by employing standardized manual treatment approaches. Nonetheless, future studies that apply treatment as usual or no treatment control groups will be imperative in gaining a comprehensive understanding of the treatment of psychopathy.

Traditional cluster analysis was implemented in the current study, employing only a single agglomeration model to generate the clusters, which researchers have pointed out, may leave considerable judgment on behalf of the interpreter (Poythress et al., 2010) or identify clusters when the group is better conceived as homogeneous (Skeem et al., 2007). Perhaps using a model-based cluster analysis approach would have provided a more statistically sound differentiation between the clusters. That being said, Olver and colleagues (2015) found that model-based clustering still required significant subjectivity from the researcher. Furthermore, a comparison of model-based cluster analysis and k-means found that k-means often outperformed the alternative approach in terms of cluster recovery (Steinley & Brusco, 2011). Therefore supporting the use of the k-means approach in the current study. As well, both aforementioned studies did not include the Antisocial facet of the PCL-R in their clustering variables because of

its association with general antisociality and risk (Olver et al., 2015; Poythress et al., 2010). The current findings may have been influenced by the inclusion of the Antisocial facet of the PCL-R. Finally, studies have shown the importance of including external variables alongside the PCL-R facets within the clustering procedure, particularly those measuring internalizing pathology such as anxiety (Poythress et al., 2010; Skeem et al., 2007). Therefore, the current findings may be limited in terms of addressing the role that anxiety plays in primary and secondary psychopathy and future research should continue to flesh this out.

Karpman (1946) reasoned that motivation for behavior is the necessary factor for distinguishing presentations that appear similar. Future research should aim to further clarify the role of different motivations, such as anxiety, leading to antisocial behavior in the different subtypes of psychopathy. Critics of the validity of the Primary/Secondary distinction on the other hand, suggested that the psychopathologies of both subtypes are fundamentally the same and thus the distinction of the two is irrelevant for treatment (Gullhaugen & Nøttestad, 2012). This must be better clarified in the future. Moreover, although past literature was consulted regarding the low likelihood that intelligence accounted for some of the current findings, it was not systematically assessed in the current sample and thus, is a limitation.

In terms of the evolutionary hypotheses, the current study created a novel profile of adaptive mating strategies adding further strength to the theory that psychopathy is not indicative of deficits, but rather has adopted an alternate life history strategy. That being said, Glenn and colleagues (2011) summarized that evolution would most likely favor flexibility of mating strategy in response to different environmental pressures, rather than engaging in one life history strategy across the lifespan. . The current study examined life history, or at least proxies of adaptation, through static variables and thus, was unable to assess whether a psychopathic individual adjusted their mating strategy in response to different environments. Also, evolutionary theories about psychopathy also include speculation about the quality of environment that the individual is situation. Future research could benefit from exploring the application of slow versus fast life history strategies in psychopathic individuals across different environmental pressures.

Overall, the current program of research provided a novel integration of the implications of risk, change, subtype, and adaptation in the treatment of psychopathic sexual offenders. Additionally, the program adopted a number of methodological improvements based on reviews

of past psychopathy treatment studies. Furthermore, it expanded on previous outcome studies by employing long-term sexual, violent, and general recidivism information. The possibility of creating meaningful subtypes through the PCL-R facets alone was further supported and external validation of the subtypes was attempted. And finally, the creation of a novel profile of adaptive markers and its relevance to treatment added to the current evolutionary literature, which is largely theoretical in nature. Overall, the integration of the current findings added to the growing optimism of the treatability of psychopathic sexual offenders, guided by the RNR model.

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Appendix A

Psychopathy Checklist-Revised (PCL-R; Hare, 1991, 2003)

PCL-R Items

1. Glibness/superficial charm
2. Grandiose sense of self-worth
3. Need for stimulation
4. Pathological lying
5. Conning/manipulative
6. Lack of remorse or guilt
7. Shallow affect
8. Callous/lack of empathy
9. Parasitic lifestyle
10. Poor behavioral controls
11. Promiscuous sexual behavior
12. Early behavior problems
13. Lack of realistic goals
14. Impulsivity
15. Irresponsibility
16. Failure to accept responsibility
17. Many short-term relationships
18. Juvenile delinquency
19. Revocation of conditional release
20. Criminal versatility

Appendix B

The VRS-SO Dynamic Risk Factors (Wong, Olver, Nicholaichuk, & Gordon, 2003)

The VRS-SO Dynamic Risk Factor Items

D1. Sexually Deviant Lifestyle

D2. Sexual Compulsivity

D3. Offence Planning

D4. Criminal Personality

D5. Cognitive Distortions

D6. Interpersonal Aggression

D7. Emotional Control

D8. Insight

D9. Substance Abuse

D10. Community Support

D11. Release to High Risk Situations

D12. Sexual Offending Cycle

D13. Impulsivity

D14. Compliance with Community Supervision

D15. Treatment Compliance

D16. Deviant Sexual Preference

D17. Intimacy Deficits

Appendix C

The VRAG, SORAG, and VRAG-R (Quinsey, Harris, Rice, & Cormier, 1998; 2006; Rice, Harris, & Lang, 2013)

The VRAG Items

1. Lived with both biological parents to age 16 (except for death of parent)
2. Elementary school maladjustment
3. History of alcohol problems
4. Marital status (at time of or prior to index offense)
5. Criminal history score for nonviolent offenses prior to the index offense
6. Failure on prior conditional release (includes parole or probation violation or revocation, failure to comply, bail violation, and any new arrest while on conditional release)
7. Age at index offense
8. Victim injury (for index offense; the most serious is scored)
9. Any female victim (for index offense)
10. Meets DSM criteria for any personality disorder (must be made by appropriately licensed or certified professional)
11. Meets DSM criteria for schizophrenia (must be made by appropriately licensed or certified professional
12. Psychopathy Checklist-Revised (PCL-R) score

The SORAG Items

1. Lived with both biological parents to age 16 (except for death of parent)
2. Elementary school maladjustment
3. History of alcohol problems
4. Marital status (at time of or prior to index offense)
5. Criminal history score for nonviolent offenses
6. Criminal history score for violent offenses
7. Number of previous convictions for sexual offenses (pertains to convictions known from all available documentation to be sexual offenses prior to the index offense). Count any offenses known to be sexual, including, for example, incest
8. History of sex offenses only against girls under age 14 (including index offenses; if offender was less than 5 years older than victim, always score +4)
9. Failure on prior conditional release (includes parole or probation violation or revocation, failure to comply, bail violation, and any new arrest while on conditional release)
10. Age at index offense
11. Meets DSM criteria for any personality disorder (must be made by appropriately licensed or certified professional)
12. Meets DSM-III criteria for schizophrenia (must be made by appropriately licensed or certified professional
13. Phallometric test results
14. Psychopathy Checklist-Revised (PCL-R) score

The VRAG-R Items

1. Lived with both biological parents to age 16
2. Elementary school maladjustment (up to and including Grade 8)
3. History of alcohol and drug problems
4. Marital status (heterosexual relationships only) at time of index offense
5. Cormier-Lang score for nonviolent convictions and charges prior to index
6. Failure on conditional release (parole revocations; breach of recognizance or probation; new charges, including index offense, while on a conditional release)
7. Age at index offense (at most recent birthday)
8. Cormier-Lang score for violent convictions and charges prior to index
9. Number of prior admissions (of one day or more) to correctional institutions (youth detention, jail, any correctional facility) for offenses prior to the index offense
10. Conduct disorder indicators (before age 15)
11. Sex offending (considering entire history including index offense, and all offenses for which there is convincing evidence whether resulting in charges/convictions or not)
12. Antisociality Facet 4 of PCL-R

Appendix D

DATA COLLECTON PROTOCOL

Subject #: _____

FPS#: _____

File Rated By:_____ Date File Rated:_____

BASIC DEMOGRAPHICS:

Date of Birth (yy/mm/dd): _____

Ethnicity:
1. Caucasian
2. Aboriginal
3. Asian
4. African Canadian
5. Add as Needed

Education (enter total years completed): _____

Level of Cognitive Functioning: _____

Employment Background:
1. Never employed
2. Frequently unemployed (more than 6 months of the last 1 year prior to current sentence)
3. Never employed a full year
4. Regularly employed (2-years and up)

Marital Status: Number of Biological Children:_____
1. Never married
2. Divorced/ separated
3. Currently common-law/married
4. Widowed

INSTITUTIONAL INFORMATION:

Name of Parent Institution: _____ Security Level: Minimum
Medium
Sentencing Date (yy/mm/dd): _____ Maximum

Index Sentence Length (years, months, and days): _____

Institutional Incidents:

# of minor incidents: _____
# of major incidents: _____
# of nonviolent incidents: _____
# of violent incidents: _____

PSYCHIATRIC INFORMATION

Axis I DSM diagnosis (not including substance abuse): _____

Axis II DSM diagnosis: _____

Substance abuse/dependence diagnosis: _____

CRIMINAL HISTORY/ INDEX OFFENSE

Sex Offender Type:

1. Rapist
2. Child Molester
3. Mixed
4. Incest

Index Offense:

1. Sexual (contact)
2. Sexual (no-contact)
3. Non-Sexual Violent
4. Non-Sexual Non-violent

Age, sex, relationship, and ethnicity of victim(s) of **INDEX** offense:

Victim 1

1. Age_____
2. Sex_____
3. Language spoken_____
4. Ethnicity_____
5. Skin color_____
6. Religion_____
7. Relationship to subject_____
8. Physical injury to victim during index offense.
   1= no injury
   2= slight injury, no weapon
   3= slight injury, weapon
   4= subject treated in clinic and released
   5= subject hospitalized at least one night

Victim 2

1. Age_____
2. Sex_____
3. Language spoken_____
4. Ethnicity_____
5. Skin color_____
6. Religion_____
7. Relationship to subject_____
8. Physical injury to victim during index offense.
    1= No injury
    2= slight injury, no weapon
    3= slight injury, weapon
    4= subject treated in clinic and released
    5= subject hospitalized at least one night

Age, sex, relationship, and ethnicity of victim(s) of **PRIOR** offense:

Victim 1

1. Age_____
2. Sex_____
3. Language spoken_____
4. Ethnicity_____
5. Skin color_____
6. Religion_____
7. Relationship to subject_____
8. Physical injury to victim during index offense.
    1= no injury
    2= slight injury, no weapon
    3= slight injury, weapon
    4= subject treated in clinic and released
    5= subject hospitalized at least one night

Victim 2

1. Age_____
2. Sex_____
3. Language spoken_____
4. Ethnicity_____
5. Skin color_____
6. Religion_____
7. Relationship to subject_____
8. Physical injury to victim during index offense.
    1= No injury

2= slight injury, no weapon
3= slight injury, weapon
4= subject treated in clinic and released
5= subject hospitalized at least one night